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**THE
CYPRUS
AGRICULTURAL JOURNAL**

1932

(Volume XXVII)

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The Cyprus Agricultural Journal.

A QUARTERLY REVIEW

OF THE

AGRICULTURE, FORESTRY AND TRADE OF CYPRUS.

Vol. XXVII., Part 1.

MARCH, 1932.

Price 3cp.

EDITORIAL NOTES.

ATTENTION in agricultural affairs is now centred in the effects of the drought both present and future.

* * * * *

Fruit trees have blossomed later than usual on account of the cold dry winter, but, as far as almonds are concerned, late blossoming is favourable for production.

* * * * *

The barley crop is now beyond hope of improvement and, with the exception of irrigated barley and the Karpas area, a very poor crop is expected. The same fate is in store for the wheat crop unless good rains fall during the latter part of March and first fortnight of April.

* * * * *

Providing fodder for animals is the greatest problem of the drought at present and owners of lands which can be irrigated are actively cultivating fodder crops.

* * * * *

Apropos of the drought and extreme shortage of grazing, His Excellency the Governor has kindly granted permission to allow animals to graze within Government House grounds.

* * * * *

Sheeps' milk, normally abundant at this time of the year, is very scarce on account of the poor pasturage. Owing to the shortage of milk, prices for dairy products are reaching a high level.

On account of the shortage of pasture and the decrease in the birth rate, it is expected there will be a considerable reduction in the total numbers of sheep and goats when the next animal count is taken.

* * * * *

The Director of Agriculture has issued several permits for the import of forage from Asia Minor and Egypt.

* * * * *

There has been a steady demand for the last two or three years for Cyprus bitter or Seville oranges for export to the United Kingdom, a demand which it has not been possible to meet, largely because existing bitter orange trees are widely scattered over the Island and are rarely grown on a plantation scale; only one or two trees in an ordinary orange grove. This renders cost of collection and transport high and makes it difficult to compete with Spain.

These oranges are manufactured into marmalade in England and the expansion of trade in the manufacture of Cyprus marmalade depends, of course, upon continuity and increase of supplies. The small export trade in bitter oranges, which there has been between Cyprus and the United Kingdom during the past few years, has recently indicated possibilities of further development.

Growers who contemplate supplying this demand might profitably plant more orange trees of this variety. It is desirable, however, that small areas should be planted exclusively to these oranges in preference to the existing system of planting one or two bitter orange trees in the ordinary orange grove.

* * * * *

There was a good export of carobs in January amounting to some 8,755 tons, but the exports dropped in February to 4,339 tons. The exports in November and December last were respectively 6,443 tons and 7,418 tons.

* * * * *

Due to the high prices ruling for onions this year, onion growers are extending the areas planted with onions. This has caused a rise in the price of onion sets.

There has been a great scarcity of imported seed potatoes resulting in the price of seed potatoes rising to 5cp. per oke. A small consignment of potatoes sent to England for testing the market has met with such success that further consignments are being sent to the United Kingdom market. Cyprus potatoes have realized £12 per ton in England and have been very well reported on by Covent Garden.

* * * * *

The free issue of mulberry plants from the Agricultural Department's Nursery Gardens and from nearly all School Gardens was taken full advantage of and all supplies available have been practically exhausted. In view of the depressed condition of the silk industry this keenness of planting mulberry trees is very encouraging.

* * * * *

The Sericultural staff of the Department of Agriculture are now fully occupied in instructing and advising silkworm raisers. The Department of Agriculture has issued 250 drams of silkworm eggs to various girls' schools in connection with the scheme of demonstrational silkworm rearing in girls' schools.

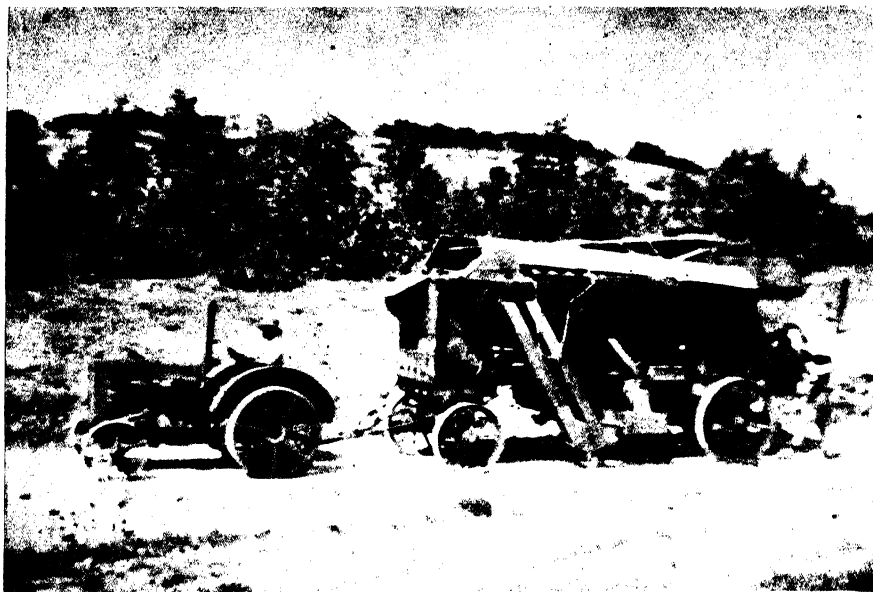
* * * * *

Some progress has been made in improving the village industry of spinning and weaving. A small school was started at Zodia in 1930 equipped with five spinning wheels and one weaving loom. There are now 20 spinning wheels and three looms fully occupied at the instructional centre.

Two of the looms have been imported by the pupils on their own account as well as a number of spinning wheels. It is hoped through time this industry will become more generally established in the villages and, as far as the school is concerned, sufficient work is in hand to place the enterprise on a commercial basis.

* * * * *

Indents have gone forward for the purchase of four threshing machines—the portable power threshers which it is intended to purchase with funds granted to Cyprus by the Colonial Development Loan Committee. It is expected all the machines will be landed in Cyprus early in the spring in time for the commencement of the threshing. If all machines are not available at the very commencement of the threshing season, at least one machine will be available as soon as there is grain



ready to thresh. The above photograph shows a portable thresher of the type which will be used. Further particulars in connection with the threshing scheme may be obtained on application to the Department of Agriculture.

* * * * *

The appeal to merchants and others to take part or give financial support for the participation of Cyprus in the Tel-Aviv Fair, has been very readily responded to and this support has made it possible for the Government to arrange a creditable display of Cyprus agricultural and industrial products. The Exhibition Commissioner, Mr. P. Symeonides, departed for Jaffa on Sunday the 20th March in order to arrange the Cyprus Pavilion for the Exhibition which opens on the 7th April.



Legislation in Cyprus against Insect Pests and Fungus Diseases.

SINCE the publication of the note on this subject in the *Cyprus Agricultural Journal*, Vol. XXI, Part 1 (January, 1926, pages 25-30), various changes and additions have been made to the Orders concerning measures against insect pests and plant diseases, and it appears useful to bring up-to-date the account then given, in order that information as to the various Orders may be readily available. Under each Order a reference is given to the issue of the *Cyprus Gazette* where the complete Order may be found.

Most of these Orders are issued under the powers given by the Diseases of Plants Prevention Law, No. 6 of 1893. This Law gives extensive powers in the making of Orders concerning the importation and cultivation of plants, trees, etc., and measures to be carried out against pests and diseases. An amendment to this Law in 1921 enables measures to be carried out by the Agricultural Department in case of default by the person who should have carried them out and the cost of doing so can then be recovered through the Courts.

The Phylloxera Prevention Law, No. 22 of 1890, gives similar powers particularly in respect of vines and vineyards with heavier penalties in case of neglect.

I. ORDERS WITH REGARD TO CULTURAL METHODS.

The following Orders issued under the Diseases of Plants Prevention Law, 1893, are at present in force :—

ALMOND PEST (*Eurytoma amygdalis*).

Order dated 15th July, 1931, and published in the Cyprus Gazette No. 2147, dated 17th July, 1931.

This Order requires the owner of any almond tree within an area declared infected with *Eurytoma amygdalis*, End. (Almond Pest) before October 1st each year to remove all almonds from each tree, collect all fallen almonds and separate all almonds which are completely and rigidly enclosed within their outer covering or which bear on their outer covering one or more reddish, violet or yellow spots. All such fallen or diseased almonds must be buried immediately in the ground sufficiently deeply to be covered by one foot of earth. The ground beneath all almond trees must at all times be kept free from weeds, stones and debris.

This Order was substituted for that previously in force in order to make it apply to each tree separately, in order to increase the penalty for neglecting the Order in a large plantation.

By a Declaration dated 15th July, 1931, and published in the same *Gazette* as the Order, the whole of Cyprus was declared infected with this pest.

CODLING MOTH (*Carpocapsa pomonella*).

Order dated 23rd February, 1925, and published in the Cyprus Gazette No. 1679, dated 27th February, 1925.

This Order has not been changed since the previous summary was published. It is repeated here for convenience.

This Order concerns all apple, pear, peach, plum, quince and walnut trees and requires the following measures :—

(a) Between February 1st and March 31st in each year all such fruit trees must be limewashed from the base to at least the height of the second branching with a solution consisting of at least 25 parts of freshly-slaked stone lime to 100 parts of water. When called upon to do so and provided with the necessary spraying machines by the Agricultural Department, the owners must limewash their trees completely from base to apex.

(b) During the fruiting period all fruit which has fallen from the trees must be buried under lime forthwith.

(c) Before July 15th the trees must have a straw or cloth band placed round each branch above the first branching, which bands must be removed and destroyed by burning or burying before the limewashing takes place in the following February.

By a Declaration of the same date as the Order and published in the same *Gazette* the whole Island is declared infected.

APPLE SIRIVIDHI (*Ermine Moth, Hyponomeuta malinellus*).

Order dated 5th April, 1922, and published in the Cyprus Gazette No. 1521, dated 14th April, 1922.

This Order remains substantially the same as given in the previous summary, the only change being the substitution of "Lead Arsenate" for "Paris Green" by an Order dated 13th March, 1928, published in the *Cyprus Gazette* No. 1907 of 16th March, 1928. The Order requires that within any area declared to be infected with this insect the owner of any apple trees suspected of being infected shall spray his trees twice with Lead Arsenate between April 15th and May 31st at such dates as shall be required by the Director of Agriculture.

By a Declaration of the same date as the Order the area of Limassol District within two English miles of the Greek Orthodox Church of Prodromos was declared infected with this pest.

COTTON BOLL WORMS (*Platyedra (Gelechia) gossypiella* and *Earias insulana*).

Order dated 3rd November, 1925, and published in the *Cyprus Gazette* No. 1730, dated 6th November, 1925.

This Order has not been changed and requires that within any area declared infected with the cotton boll worms the owners of all cotton and mpamia plants shall pull up or otherwise destroy all such plants before a date to be fixed annually by the Director of Agriculture, except that in the case of cotton within the first year of its growth the plants may instead be cut down to not more than three inches above the ground.

The date fixed for the completion of the destruction or cutting down of the plants is usually November 30th.

By a Declaration dated 16th May, 1925, and published in the *Cyprus Gazette* No. 1696 of 22nd May, 1925, the whole Island is declared infected except the area on the northern watershed of the Kyrenia hills enclosed by the village boundaries of Lapithos, Karavas, Motidhes, Palæosophos, Elaea and Phterykha.

CAROB FLY (*Aspondylia gennadii*).

Order dated 14th January, 1930, and published in the *Cyprus Gazette* No. 2029, dated 17th January, 1930.

This Order cancels and replaces that of 1922 mentioned in the previous summary. Under this order owners of carob trees in an area declared infected with this insect, which causes "Brachycarpia" disease, are required to collect all diseased pods before April 20th and burn them or bury them under quick lime and one foot of soil. When this has been done the owner must sign a declaration to this effect and forward it to the Mukhtar of the village in which the carob trees are situated.

No area has been declared infected under this Order.

OLIVE FLY (*Dacus oleæ*).

Order dated 15th June, 1928, and published in the *Cyprus Gazette* No. 1928, dated 15th June, 1928.

By this Order the whole Island is declared infected and owners of olive trees are required to collect daily all olives fallen from their trees from September 1st to October 31st and to bury them in the ground with lime or to press them forthwith. Provision was also made in this Order for the spraying of olive trees with poison bait during 1928 only.

POTATO TUBER MOTH (*Lita* ; *Phthorimaea operculella*).

Order dated 4th March, 1930, and published in the *Cyprus Gazette* No. 2036, dated 7th March, 1930.

Under this Order in any area declared infected with this insect all owners of potatoes attacked by this insect are required to boil them at once or bury them in the ground under lime

and at least one foot of soil. No potatoes may be exposed or left uncovered either in the field or in stores, except that they may be exposed for sale in markets. It is prohibited to sell, offer for sale or buy any potatoes attacked by this insect either for seed or any other purpose, and infected potatoes may not be moved out of the village where they were grown unless previously boiled.

All rooms and stores intended for the storage of potatoes must be repaired and limewashed or fumigated before potatoes are brought in for storage. Any expenses incurred in boiling or transporting diseased potatoes to the place of boiling are at the charge of the owner of the potatoes.

By a Declaration dated 12th July, 1930, and published in the *Cyprus Gazette* No. 2070 of 18th July, 1930, the whole Island is declared infected.

VINE SIRIVIDIII (*Zygaena ampelophaga*).

Order dated 18th March, 1918, and published in the *Cyprus Gazette* No. 1324, dated 22nd March, 1918.

This Order has not been changed since the publication of the previous summary. It requires that in any area declared to be infected with this insect all owners of vines whose vines are infected or suspected of being infected shall spray their vines during the month of April, with Paris Green at the rate of 28 drams to 100 parts of water.

No area has been declared infected under this Order.

DOWNY MILDEW OF VINE (*Plasmopara (Peronospora) viticola*).

Order dated 18th November, 1920, and published in the *Cyprus Gazette* No. 1462, dated 18th November, 1920.

There has been no change in this Order since the publication of the previous summary.

By this Order in an area declared to be infected with this disease the owner of any vines which are infected or suspected of being infected with this disease must collect all leaves from his vines between November 20th and December 20th and burn them. Between February 1st and March 31st he must prune all his vines and burn all cut canes, and between March 15th and July 1st, at the dates required by the Director or other authorized officer of the Agricultural Department, he must spray his vines three times with Bordeaux Mixture. By an Order dated 17th March, 1921, published in the *Cyprus Gazette* No. 1474, dated 18th March, 1921, "Antiperonosporine" is permitted to be used instead of Bordeaux Mixture.

Under this Order an area comprising all Paphos District west of the Xero Potamos and south of Polis has been declared infected by a Declaration published at the same time as the Order.

SIRIVIDHI OF CEREALS (*Syringopais (Scythris) temperatella*).
Order dated 25th March, 1930, and published in the Cyprus Gazette
No. 2041, dated 28th March, 1930.

By this Order it is provided that in any area declared infected with this insect the provisions of this Order shall come into effect from September 1st next following the date of the publication of the Declaration in the *Cyprus Gazette*.

Copies of every Declaration must be posted in at least two conspicuous places in each village affected.

During at least two years and not more than four years from the coming into effect of this Order no wheat, barley, oats or rye may be planted in the declared area.

Power is also given by this Order to regulate the manner and time of cultivating any land remaining fallow in the declared area, and to prescribe the crops other than winter cereals which may be grown in the area.

By a Declaration dated 25th February, 1931, published in the *Cyprus Gazette* No. 2115 of 27th February, 1931, areas at Akanthou, Pissouri, Paramali, Evdhimou and Alektora were declared infected, this Declaration replacing a previous Declaration dated 29th August, 1930, and reducing some of the areas. An area at Rizokarpaso declared infected on 29th August, 1930, had already been declared uninfected on 15th December, 1930, *Gazette* No. 2101, dated 19th December, 1930. Areas included in the first Declaration but not in the second are declared in the latter to be uninfected.

Order dated 26th February, 1931, published in the Cyprus Gazette
No. 2115, dated 27th February, 1931.

This revokes an Order dated 15th September, 1930, regarding the area included in the Declaration of 29th August, 1930, but repeats its provisions for the area included in the Declaration of 25th February, 1931.

By this Order owners of land within the declared area which is fallow must plough it twice between January 1st and March 31st so that all weeds are buried.

This Order also permits the cultivation of vetches, vicos, broad beans, French beans, lentils, favetta, chickpeas, louvana, cowpeas, lucerne, trefoil, cumin, tobacco, flax, cotton, potatoes, onions, sesame or other summer crops in declared areas.

II. ORDERS WITH REGARD TO THE IMPORTATION OF PLANTS, ETC. PLANTS, FRUIT, ETC., IN GENERAL.

Order in Council No. 1421, dated 23rd April, 1931, and published
in the Cyprus Gazette No. 2131, dated 1st May, 1931.

This Order regulates the importation into Cyprus of all plants, fruit, seeds and plant material generally, except cotton, cotton seed, etc., and potatoes which are dealt with by separate Orders,

By this Order the importation of the following is permitted from any source, without certificates or other formalities :—

Cereals and all dry seeds (except cotton seed) if properly cleaned from husk, straw and earth ; acorns ; vallona ; almonds ; walnuts ; chestnuts and other nuts (including ground nuts) if free from outer husks, leaves, stalks and branches ; preserves ; crystallized fruits ; bottled and canned fruits and vegetables hermetically sealed in proper receptacles ; flour and meal of all kinds and every preparation thereof ; tamarind ; saponaria wood ; vegetables desiccated by artificial heat and enclosed in packages ; dry and aromatic plants used for medicinal purposes and for dyeing, if free from earth ; dried fruit and vegetables, provided the proper officer of Customs is satisfied that they are *bona fide* dried fruit and vegetables, and subject to inspection by any officer of the Agricultural Department and to any treatment at the expense and risk of the importer which may be required by such officer ; carobs, if free from earth.

Fresh fruit and vegetables in a raw state ; trees and plants and every living part of a tree or plant ; flowers, cut and otherwise ; dried plants and flowers ; staves which have been used for vine props or similar purposes ; binding which has been used for vines or other plants ; earth, gravel, leaf and garden mould ; animal and vegetable manures, except guano, bone dust and other fossil or chemically-prepared manures, may be imported from Great Britain and certain other countries in the north-west of Europe if accompanied by the certificate specified in the Order, certifying that they have been inspected and found free from pests and diseases, especially those named in the Order. The same articles may also be imported from any other countries possessing a Government Phytopathological Service, subject to prior permission having been obtained from the Director of Agriculture, Cyprus. All such imports are subject to inspection and any treatment which may be considered necessary, and must be enclosed in stout packing material and clearly labelled with the name of the contents.

No action can lie and no compensation is payable in respect of any loss or damage consequent upon any action taken by an official of the Agricultural Department in accordance with the provisions of this Order.

Importation of hay or straw is permitted only under permit from the Director of Agriculture. Grasses, leaves or other vegetable matter used as packing for goods imported from places not in Great Britain and certain other countries in north-west Europe or from other countries possessing a Government Phytopathological Service (in which case prior permission must be obtained) must be destroyed at the Customs House on arrival except in cases where the packing is in the form of manufactured wrappers of dry straw.

The importation of fresh or dry parts of the vine, except raisins and currants, is prohibited unless the special permission of the Governor is first obtained.

No articles the importation of which is in any way prohibited or restricted by this Order, may be imported from any place from which its importation is not prohibited unless the Customs Officer is satisfied that the articles do not originate in a country from which their importation is prohibited, and that the other requirements of the Order have been complied with.

This Order does not prohibit the importation by the Director of Agriculture on behalf of the Government of articles covered by this Order for the purposes of experimental cultivation or scientific investigation.

Under this Order specified articles from specified places may be imported directly into Cyprus if they are accompanied by a certificate from the competent authority of the country of origin in the specified form certifying that the articles have been fumigated and stating particulars of this treatment. The fumigation must be in accordance with the requirements of the Director of Agriculture and the articles may be inspected and further treatment may be required on the arrival of the goods in Cyprus.

Articles which may be imported under this provision are tomato fruit and banana fruit from Palestine which were included in the Order, and to these has since been added water melons from Palestine by Order in Council No. 1426, dated 27th July, 1931, and published in the *Cyprus Gazette* No. 2151, dated 31st July, 1931.

POTATOES.

Order in Council No. 1305, dated 20th May, 1929, and published in the Cyprus Gazette No. 1985, dated 23rd May, 1929.

Potatoes for seed purposes only may be imported, and only through the ports of Famagusta, Larnaca, Limassol and Paphos. They may be imported only in such quantities and from such countries as have been authorized beforehand by the Director of Agriculture and may be imported only direct from the country of origin unless they have remained in Customs charge while being transhipped.

The potatoes must be the produce of crops inspected while growing by inspectors of the Department of Agriculture or equivalent authority of the country in which they were grown and must have been found by these inspectors to be not less than 97% pure ; they must not be imported in bags containing more than one hundredweight.

Every consignment of potatoes must be accompanied by the following documents :—

(a) A statutory declaration by the shipper in the form given in a schedule of this Order, giving the name and address of the grower of the potatoes ; their place of origin ; the name of the variety ; the size and dressing, otherwise to be described as “ As grown ” ; the number of the certificate issued after the inspection of the crop during its growth ; a statement that the potatoes were not grown in land infected with any of the diseases included in a schedule of this Order.

(b) A certificate from the Department of Agriculture or equivalent authority of the country from which the potatoes are imported, certifying that at a date not more than 30 days before the despatch of the consignment the diseases included in the schedule of this Order were not known to exist within five miles of the place in which the potatoes were grown.

(c) A certificate from the Department of Agriculture or equivalent authority of the country from which the potatoes are imported, certifying that the consignment has been inspected and found to be in good condition and free from diseases and insect pests.

Every consignment of potatoes is subject to inspection by officers of the Agricultural Department and if found or suspected of being diseased they may at the discretion of the Director of Agriculture be ordered to be either :—

- (1) Destroyed by the importer under supervision,
- (2) Subjected to any treatment which may be required, at the expense of the importer,
- (3) Re-exported.

No compensation is payable in respect of any loss or damage consequent on any action taken by the Director of Agriculture or an inspecting officer.

Consignments of potatoes not complying with the above requirements or unaccompanied by the correct documents are to be dealt with as if they had been found to be diseased.

All importers of potatoes are required to notify the Director of Agriculture of the names and addresses of all persons to whom they sell these potatoes.

The insects and fungi included in the schedule of this Order are at present :—Potato tuber moth (*Phthorimæa operculella*), Colorado potato beetle (*Leptinotarsa decemlineata*) and Wart disease (*Synchytrium endobioticum*).

COTTON, COTTON SEED, ETC.

Order dated the 13th day of May, 1925, and published in the Cyprus Gazette No. 1695, dated the 15th day of May, 1925.

This Order provides that cotton seed, seed cotton and any living part of the cotton plant, dry leaves and sticks or refuse of the cotton plant, raw cotton, and packing material which has been used for any of the above may not be imported into Cyprus either directly or indirectly from the American Continent and West Indies, China, Cochin-China, Greece, India, Russia, Turkestan, Turkey, or any country not possessing a Government Entomological Service, unless it is imported through the port of Famagusta ; is accompanied by a statutory declaration by the consignor, in the form prescribed in the Order ; and is immediately disinfected in such a manner as the Director of Agriculture shall prescribe, or is placed in quarantine for such a period as he shall deem fit.

Cotton seed, etc., as above may be imported from countries other than those already stated, provided it is imported through Famagusta and is accompanied by a statutory declaration as before.

The Order also requires the notification by the importers of the arrival of the cotton seed, etc., and lays down how the material must be packed and labelled.

III. OTHER LEGISLATION.

LOCUSTS.

The Locust Destruction Law, 1881, gives extensive powers to apply measures against locusts and to make necessary rules, regulations and orders. Power is given to enter land, dig for eggs, dig pits, erect screens, etc., and also to cut and remove standing crops. The Law also regulates the storage of locust eggs and lays down penalties for breaches of the Law. The importation of locust eggs into Cyprus is prohibited. Penalties are also laid down for obstruction of officers carrying out the Law.

The Locust Destruction Expenses Law, 1881, provides for the formation of a Locust Destruction Fund to defray the cost of locust destruction, the fund being raised by special taxes. This Law has been suspended by a Proclamation dated 31st October, 1927, published in the *Cyprus Gazette* No. 1880, dated 4th November, 1927.

Under the Locust Destruction Law were issued the Locust Regulations, 1929, dated 11th December, 1929, published in the *Cyprus Gazette* No. 2024, dated 27th December, 1929. These Regulations give the powers provided by the Locust Destruction Law, 1881, to a prescribed officer, give authority for the spraying of areas infected with locusts with Arsenite of soda or other material, and also for taking any water which may be required.

In the same issue of the *Cyprus Gazette* it was directed that these regulations should be carried into effect by the Director of Agriculture and should be in force throughout the Island from February to August inclusive annually. In another notice in the same issue of the *Cyprus Gazette* the Director of Agriculture was authorized to exercise the powers given by the Locust Destruction Law, 1881, the authorization given to the Treasurer in 1924 being at the same time cancelled.

BEES, HONEY, ETC.

Order in Council No. 1041, dated 11th February, 1925, and published in the Cyprus Gazette No. 1674, dated 13th February, 1925.

This Order, issued under the Customs, Excise and Revenue Law, 1899, prohibits the importation into Cyprus of bees, honey and substances containing honey in an uncooked state, except by special licence of the Governor.

SILKWORMS.

The Silkworm Industry Protection Law, 1922, controls the importation, rearing and sale of silkworm eggs. This Law was amended by Law No. 1 of 1925 (text published in the *Cyprus Gazette* No. 1678, dated 20th February, 1925), and again by Law No. 17 of 1925 (text published in the *Cyprus Gazette* No. 1732, dated 20th November, 1925).

Under this Law as amended the importation of silkworms is prohibited and eggs may only be imported with the permission of the Director of Agriculture and between October and February inclusive. The eggs must be in a container sealed by a banderolle affixed by a Government authority considered by the Director of Agriculture as guaranteeing the quality of the eggs, and they must be accompanied by such certificates from the vendor as the Director of Agriculture may require. Penalties are provided for illegal importation of eggs and for the raising of eggs illegally imported.

Licences may be granted for the raising of eggs in the Island, and all such eggs must be placed in boxes sealed with a banderolle. It is illegal to be in possession of eggs not in a banderolled box between 1st February and 15th March. Eggs may only be sold or bought in banderolled boxes.

Any person rearing silkworms must retain and produce when required the box and banderolle in which they were purchased. All persons selling eggs or silkworms must, not later than 20th April, furnish a statement of all sales. Locally raised eggs may only be purchased from licensed raisers.

Powers are also given for the inspection of eggs, silkworms and moths, and for the confiscation and destruction of diseased rearing. No filature, other than the hand-reeling apparatus in common use, may be established in Cyprus without previous licence from the Governor, in which licence terms and conditions may be prescribed. This Law came into force on 4th August, 1922, (*Gazette* No. 1536, dated 4th August, 1922).

Under the Silkworm Industry Protection Law was issued the Order in Council No. 899, dated 4th August, 1922, and published in the *Cyprus Gazette* No. 1536, dated 4th August, 1922. This Order is known as the Silkworm Industry Protection Rules, 1922,—(No. 2), 1928, having been amended as follows:—

Order in Council No. 1004, dated 22nd March, 1924, published in the *Cyprus Gazette* No. 1630, dated 28th March, 1924.

Order in Council No. 1101, dated 17th March, 1926, published in the *Cyprus Gazette* No. 1761, dated 26th March, 1926.

Order in Council No. 1223, dated 2nd February, 1928, published in the *Cyprus Gazette* No. 1902, dated 10th February, 1928.

Order in Council No. 1246, dated 4th August, 1928, published in the *Cyprus Gazette* No. 1936, dated 10th August, 1928.

The Silkworm Industry Protection Rules, 1922, but without the amendments made in the four Orders referred to above, have been published in the form of a booklet.

These Rules regulate the details of the importation, inspection and banderolling of eggs and the issue of licences to raise eggs.

SALE OF INSECTICIDES AND RAT POISONS.

Under the Pharmacy Laws, 1900 and 1926, a notice dated 3rd September, 1926, was published in the *Cyprus Gazette* No 1797, dated 3rd September, 1926, by which the schedule of poisons under the Pharmacy Laws was amended. The effect of these amendments is that arsenic and its preparations, and preparations and admixtures containing the poisonous alkaloids of tobacco, for use exclusively in agriculture and horticulture for the destruction of insects, fungi and bacteria, and, in the case of arsenic, as a sheep wash or sheep dip, are not included in the schedule of poisons and may be sold by unlicensed persons, provided they are:—

(a) contained in a closed package or vessel distinctly labelled with a notice of the special purpose for which the preparation is intended; and

(b) sold upon an order in writing given by or on behalf of a person, firm or body corporate known to the vendor; and

(c) purchased for the purpose of the trade or profession of such person, firm or body corporate.

The effect of this regulation is to facilitate considerably the sale and purchase of arsenical and nicotine insecticides, which was previously very inconvenient.

A notice dated 21st September, 1931, and published in the *Cyprus Gazette* No. 2161, dated 25th September, 1931, further amended the schedule of poisons under the Pharmacy Laws by excluding from the schedule preparations of salts of Barium for use exclusively in agriculture for the destruction of rats, provided (a) the preparations are contained in a closed package or vessel distinctly labelled with a notice of the special purpose for which the preparation is intended, and (b) the preparations are sold or supplied upon a request in writing stating the name and address of the person, firm or body corporate by whom or by which any such preparation is to be used.

Control of Fungus Diseases.

DIRECT METHODS OF CONTROL.

DIRECT methods of controlling fungus diseases consist of the use of certain chemical poisons, or other agencies such as heat, to kill parasitic fungi or to prevent their spores from infecting healthy plants. Before embarking on a campaign of spraying, or dusting with a view to controlling fungus diseases, some knowledge of the properties, action, and methods of applying the various fungicides available will enable the cultivator to make the best use of the materials at his disposal. All direct methods of combating fungus diseases are somewhat expensive so that the crop must be of a valuable nature to make the expenditure worth while. Hence such measures of control are only widely employed on valuable crops such as vines, fruit trees, potatoes and other market garden and orchard crops, some of which are liable to be totally destroyed by severe epidemics of fungus diseases.

The poisons (fungicides) by which fungus diseases can be successfully attacked may be divided into three groups:—

(a) Those which kill or destroy the fungus immediately on coming into contact with it; the so-called "hitting" spray fluids.

(b) Those which form a poisonous layer on the surface of the foliage and on which the germinating spores of the fungus are killed before they can gain entry into the plant.

(c) Those which are intermediate in their action between (a) and (b): i.e. they kill the fungus on coming into contact with it but to a certain extent they also form a poisonous layer.

Fungicides may be in the form of dusts or powders or in liquid form, composed of solutions or fine particles suspended in a liquid.

A fungicide should fulfil two conditions : (a) it must contain a poison sufficiently strong to kill the fungus or to prevent its spores from germinating, but at the same time it must not be injurious to the plant, and (b) it should be inexpensive and easy to handle.

Of the liquid fungicides of the first group which have a direct action may be mentioned washing soda and soft soap (Formula No. 1) which is useful for controlling powdery mildews in small gardens, the ingredients being common household commodities. In common with "hitting" fluids of this nature, several applications must be given, as only the fungus present is killed ; the plant is not protected from future infection. The mixture of soap and soda has a further advantage in possessing the power of breaking down the film which causes water to run off in drops. It is thus able to penetrate the tightly woven mass of fungus threads of which the mildew is composed. This property of spray fluids is discussed further below.

A weak solution of carbolic acid and soft soap is another example of a "hitting" fluid useful for combating rose mildew.

Of the protective layer type of fungicides are the well known copper spray fluids, Bordeaux Mixture (Formula No. 2) and Burgundy Mixture (Formula No. 3). Both these contain copper sulphate as the poisonous principle. Copper sulphate is one of the most efficient fungicides known. A solution of this substance, however, even when greatly diluted, has an injurious effect on plant foliage. The inter-action of the copper sulphate with lime or washing soda produces a compound which, while retaining much of the fungicidal property of the copper sulphate, does not injure the foliage. Further when the liquid evaporates it leaves a poisonous layer which is washed off by rain only with considerable difficulty. This persistent layer serves to protect the leaves from infection, as spores alighting on it are either killed directly or when they commence to germinate.

Burgundy mixture, though slightly more expensive to make than Bordeaux Mixture, is to be preferred where lime is of an inferior quality or is difficult to obtain. It has certain other advantages in that it is rather less likely to be washed off by rain and is not so likely to clog the spraying machine. These spray fluids have a wide application against a large number of fungus diseases, especially the Downy Mildew of the Vine and the Early and Late Blight of Potatoes,

An example of a spray fluid which acts both as a "hitting" spray and also forms a protective layer is lime-sulphur. It is best bought in the concentrated form and before use merely has to be diluted with the requisite amount of water. It is a valuable fungicide for use on fruit trees which are liable to be injured by certain copper fungicides and is particularly effective against the powdery mildews of apple, peach and almond.

It is a matter of common observation that rain or water sprayed on the surface of a cabbage leaf immediately forms drops or globules which tend to run off the inclined leaf surface. If the leaf, on the other hand, is dipped into a solution of soap, the globules do not form but the water "spreads" over the surface as a film of moisture. In the same way pure water sprayed on wool will remain on the surface of the fibres in the form of drops. The soap solution, however, will penetrate between the wool fibres and thoroughly "wet" the wool. This spreading and wetting property of spray fluids is of great importance, for without it the fluid will not spread and make an even film on the leaf surface, nor will it penetrate and wet the tangled mass of fungus threads of which the powdery mildews are composed. Various substances as well as soap can be added to spray fluids to increase their wetting and spreading powers, such as calcium caseinate, saponin, skim milk, etc. Certain proprietary substances such as "Agrol" are also on the market.

DUSTS.

The only fungicidal dust at present in general use in Cyprus is sulphur, which should be in the form of "Flowers of Sulphur" or very finely ground or precipitated sulphur. This kills the fungus by direct action of the sulphur particles in contact with the fungus. Its chief value lies therefore in combating the powdery mildews and is the chief specific in use against the "Oidium" of the vine. Figure 3 shows the action of minute particles of sulphur on a powdery mildew. The chains of spores where they have come into contact with the particles of sulphur have shrivelled up. As the particles of sulphur are in actual contact with the fungus, it follows that, to obtain the best effect, the sulphur should be in a fine state as the smaller the sulphur particles the greater the amount of mildew with which they can come into contact.

Other dusts, which have not yet had a wide application in Cyprus, are the copper-lime dusts which, on coming into contact with moisture on the surface of the foliage dissolve and form a deposit similar to that left by Bordeaux Mixture. They are not on the whole as efficient as the wet sprays but have useful application in districts where water is not readily obtainable or in very hilly districts where water is difficult to carry to the spraying machines,

APPLICATION OF FUNGICIDAL MATERIAL.

A spray fluid whose efficacy depends on its penetrating or wetting power such as the soap and soda mixture may be put on with a fairly coarse nozzle. With the protective layer type of spray fluid the foliage must not be "washed." A fine misty spray is required which will form a film on the surface of the leaf without causing it to drip. Spray fluids can be readily applied by means of the numerous knapsack machines on the market. The pneumatic type of machine which can be pumped up to a considerable pressure is on the whole more efficient than the lever pump type. Knapsack machines can be used for all garden and field crops and for trees not more than 10 feet high. With a knapsack machine one man can use about 60 gallons of spray fluid a day. For larger orchards, vine plantations and potato plots a hand pump mounted on a 15-gallon tank on wheels is a more suitable type of apparatus to use, especially as with this machine a higher pressure can easily be maintained.

Powders can be applied by means of small hand bellows or a knapsack dusting machine. The most efficient of the mechanical dusters are those fitted with a rotary fan in place of the bellows. The chief desideratum is to produce a cloud which will penetrate the thickest foliage and leave a deposit of particles on both surfaces of the leaves. For this reason powder can usually only be applied when there is little wind. It is generally necessary to dust in the morning or evening when the foliage is wet with rain or dew. This is essential with the copper-line dusts which depend for their efficiency on the solution and interaction of their component particles. For dusting on a very small scale a muslin bag filled with powder and beaten with a stick will give fairly good results.

In deciding which of the various fungicides should be employed to combat a particular disease a knowledge of the life-history and mode of infection is required. Parasitic fungi may be divided for this purpose into two groups : (a) those which spend the greater part of their existence on the surface of the plant merely sending down minute suckers into the plant tissue to obtain nourishment, and (b) those which live inside the plant tissue only appearing on the surface to produce spores or fruit bodies. As an example of the first group may be mentioned the Powdery Mildews (Figure 1.) which each year take a heavy toll from vines, cucurbits, cereals and many other plants. All the fungus threads of this group are entirely superficial with the exception of the minute suckers. A fungus of this nature is susceptible to treatment by a fungicide having a direct action such as a "hitting" spray fluid or a powder-like sulphur which kills the fungus on coming into contact with it,

In the second group are a very large number of fungi such as the Downy Mildew of the Vine, the Early and Late Blight of potatoes. Since these fungi live inside the tissue of the plant the external application of fungicides can have no effect on them (Figure 2). The small portion of the fungus which emerges to produce spores can be killed by the direct action of fungicides but the effect is only temporary ; a fresh crop of spores being produced after a short time. The most effective way of dealing with this type of fungus is to cover the surface of the plant with a poisonous layer which either prevents the spore from germinating or kills it during the process of germination. It will be at once obvious that with this type of fungicide early application is necessary in order to get the poisonous layer into position before the spores alight on the surface. Once the spores have penetrated the leaf the protective poisonous layer will be of little avail. The golden rule is to *spray early before the disease appears*. Further additional applications must be made from time to time in order to cover the fresh foliage as it unfolds.

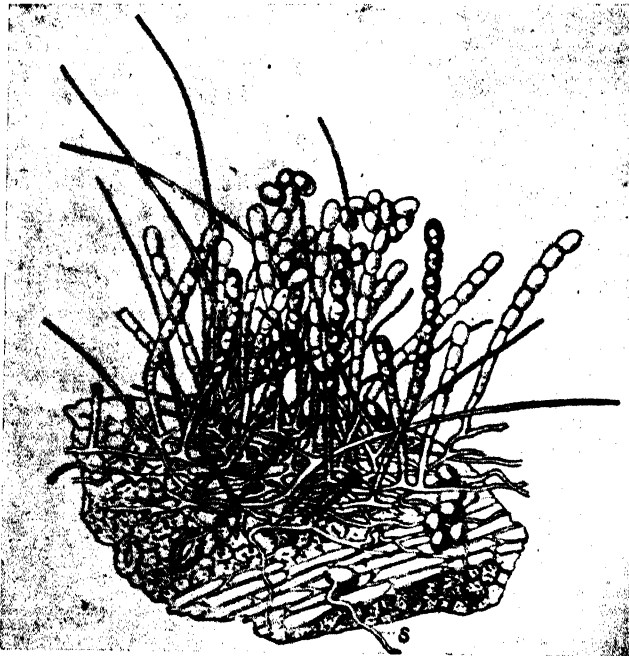


FIG. 1.—An example of a Powdery Mildew ; the fungus is external on the surface of the leaf. For this type of fungus a direct action fungicide is effective.

(After Tulasne, from Heald.)

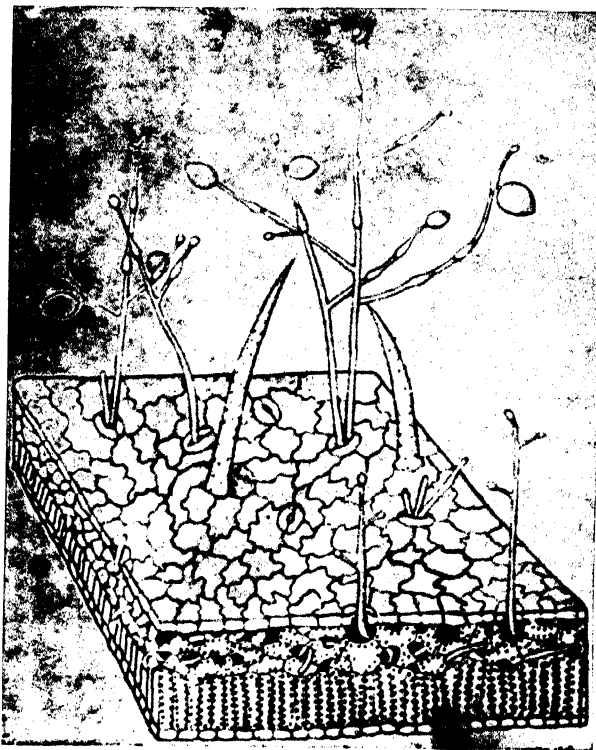


FIG. 2.—An example of a fungus which is inside the leaf tissue, only emerging to produce spores. For this type of fungus a protective layer fungicide is required.

(After U.S.A. Bull. 168 from Heald.)

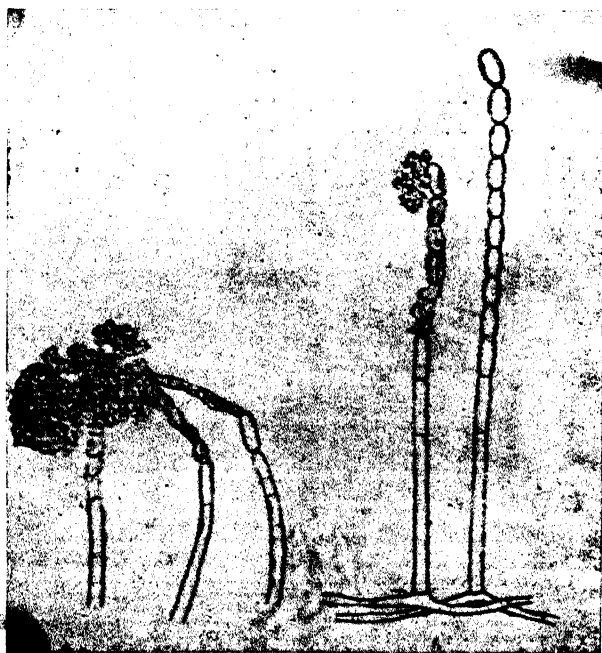


FIG. 3.—Showing the effect of particles of sulphur on the spores and

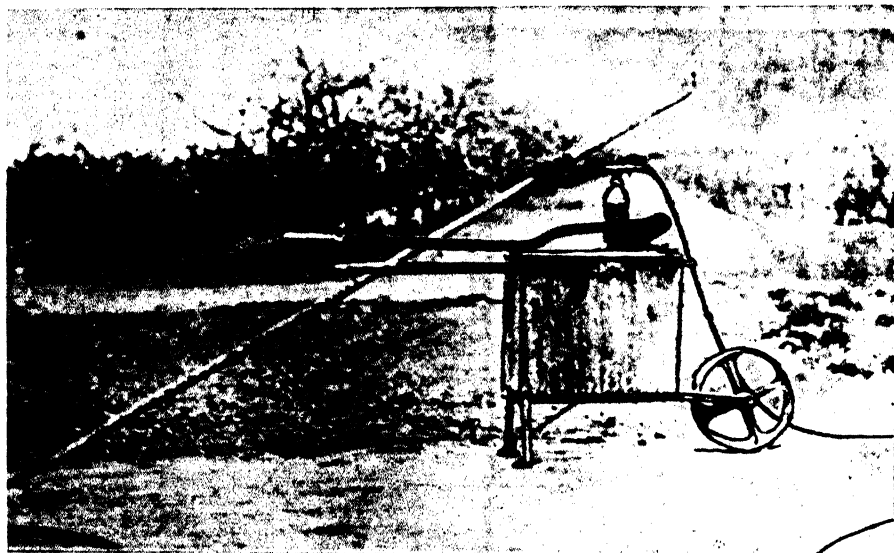


FIG. 4. A useful type of spraying machine for use in large orchards and field plots.

(From Min. of Agric. Bull. No. 5.)

The following formulae for the preparation of liquid fungicides are recommended :—

FORMULA NO. 1.—*Washing Soda and Soft Soap.*

Soft soap	..	..	..	40 drams.
Washing soda	..	..	..	70 drams.
Water	..	..	..	10 okes.

The soap is dissolved in a small quantity of hot water, boiling if necessary, and is then added to the solution of soda.

FORMULA NO. 2.—*Bordeaux Mixture.*

Copper Sulphate	..	..	1 oke or 32 drams.
Stone lime	..	..	1 oke or 32 drams.
Water	..	..	125 okes or 10 okes.

The copper sulphate should be of 98 per cent. purity and the lime must be freshly-made quick lime.

The copper sulphate* should be dissolved in about one-tenth of the water in a wooden vessel. The lime should be carefully slaked with as little water as possible in another vessel. In slaking the lime as much heat as possible should be developed. The lime must not be flooded but first slaked to a powder, then to a cream and finally to a milk. It is then diluted to nine-tenths of the final volume and the copper sulphate solution poured slowly into it, the mixture being stirred during the process. The two solutions may be kept separately for a long time but when mixed they should be used as soon as possible.

* Unless the copper sulphate is finely powdered difficulty may be experienced in getting it to dissolve. The solution may be hastened by using a little hot water and then making up to the required quantity with cold water.

To be sure that the mixture has been properly made it should be tested by dipping into it a bright knife blade or iron nail. If after one minute the colour of the iron remains unchanged the mixture is safe to use, if it becomes stained more lime must be added and the test repeated.

FORMULA No. 3.—*Burgundy Mixture.*

Copper sulphate	..	..	1	oke or 32 drams.
Washing soda	..	..	1 $\frac{1}{4}$	okes or 40 drams.
Water	..	..	125	okes or 10 okes.

The copper sulphate should be dissolved as in Formula No. 2 in one-tenth of the water and the solution then made up to nine-tenths of the final volume. The washing soda should be dissolved in one-tenth of the water and then added slowly to the copper sulphate solution; the whole mixture being well stirred during the process.

The same safety test may be carried out as with Bordeaux mixture, if the iron is stained more soda must be added.

In all cases relating to the application and making of fungicides, growers are advised to seek the advice of the Mycologist or the officer in charge of any Nursery Garden. Enquiries as to the control of vine diseases should be addressed to the Viticulturist and Wine Expert, Limassol.

Orange Budwood Selection.

PROPAGATION by budding is the usual method employed for producing the best varieties of oranges commercially. The Jaffa type, in common with other varieties of citrus, is particularly subject to variation, therefore the selection of budwood is a very important matter in Cyprus where the Jaffa type is mainly produced.

The better strains of cultivated fruit trees, including the citrus group have originated from variations from an original type as bud mutations. The Jaffa type no doubt originated in the same way and for this reason it has a tendency to produce variations.

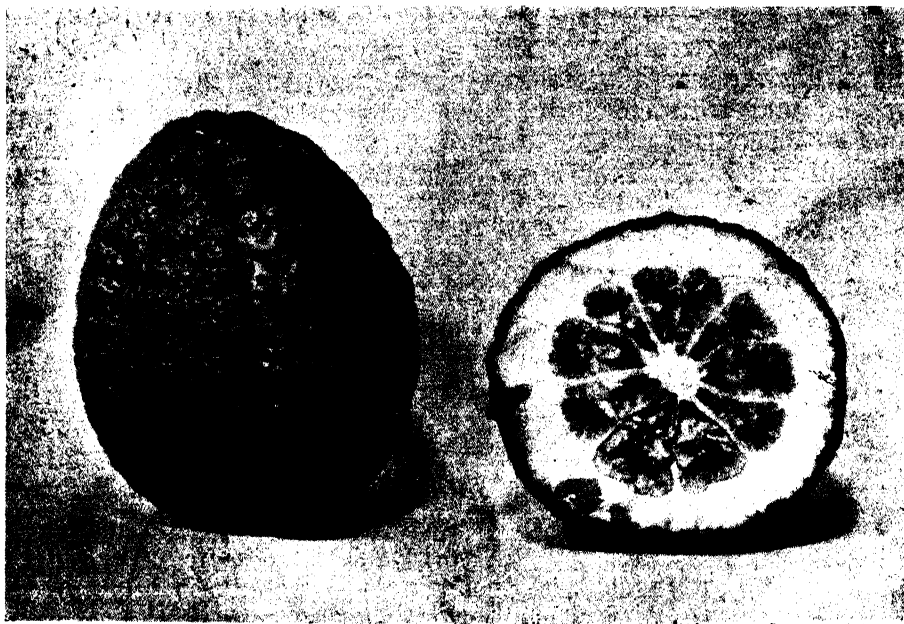
It is not possible to define the exact cause of the variation, but it is believed that a change takes place in a cell, or a group of cells, causing some characteristic hitherto latent, or recessive, to become dominant.

The illustration shown on page 24 shows a type of bud variation. Sometimes one particular branch only is affected but cases occur in which the whole tree is affected. It is, therefore, essential to prevent deterioration of the variety, upon which

the export trade is based. Such care has not been given in the past and the result is to be seen in the number of trees in most commercial plantings producing inferior fruit, or carrying year after year very light crops. Such trees are, for obvious reasons, of little value to the grower.

The propagation of trees with no regard to the type of tree, or the type of fruit produced on the tree from which the budwood is taken, will result in a steady increase in the number of trees which produce fruit of an inferior type.

Cyprus can only maintain a profitable market for her increasing supplies of oranges, which is in competition with enormous quantities from Palestine and Spain, by shipping fruit of the highest quality. Every orange grower should, therefore, realize the importance of propagating his trees from parent trees known to bear fruit of the highest quality and in abundance, or of obtaining young grafted trees from an established reliable source.

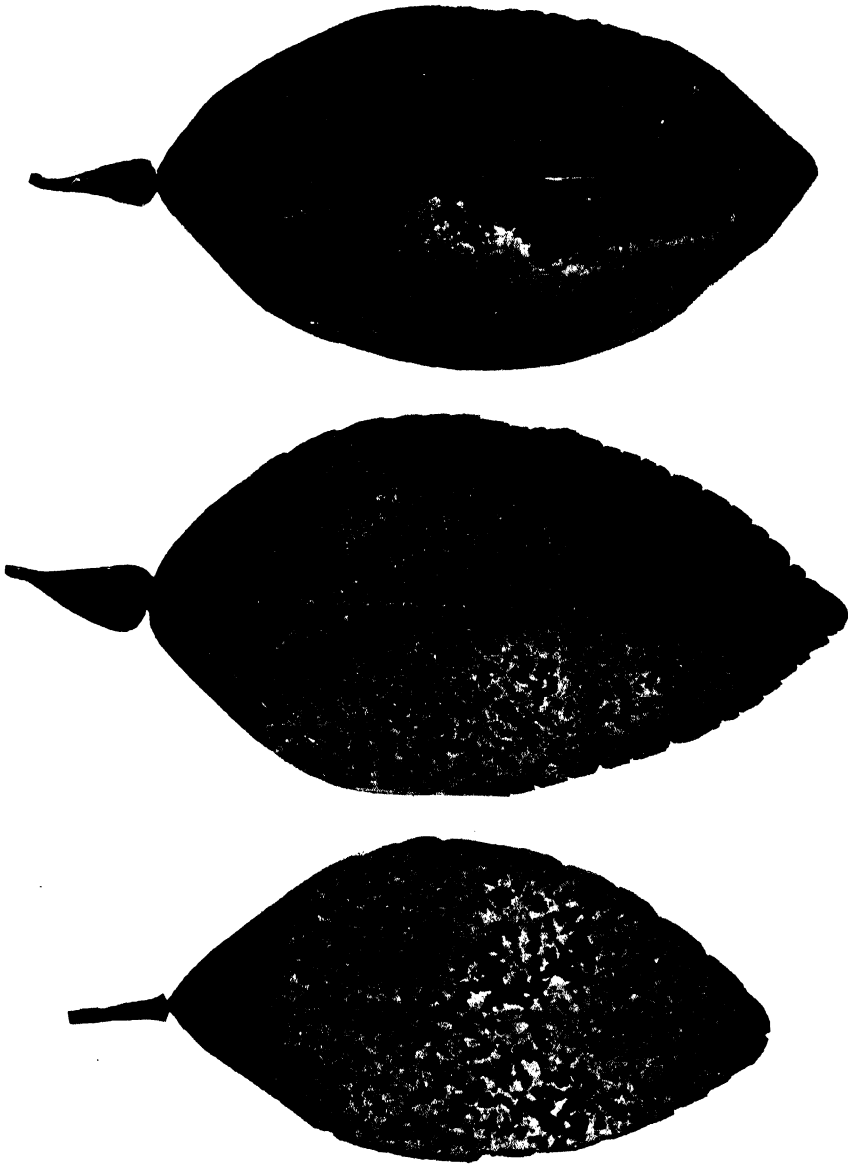


Bud Variation in the Jaffa Orange.
(Specimen taken from commercial planting at Famagusta.)

Citrus Leaf Gum Spot.

AN abnormality of the leaves of citrus fruits in Cyprus is frequently mistaken for an infectious fungus disease. This takes the form of small raised pustules of a dark brown to black colour and of irregular shape and size. They are usually smooth and hard and are caused by a small area of the surface cells becoming impregnated with a hard gum-like substance.

The precise factors inducing this condition are not known but are thought to be slight frost followed by bright sunshine, or the effect of sun scorch. The spots may also be induced to form by certain spray materials or by the effect of fumigation. It is possible that certain soil conditions and water relations may influence their formation. The effect is, however, localized in the leaves and need not give rise to alarm.



Types of "Gum-spot."

(After Fawcett and Lee.)

The Cultivation of Hemp.

ORDINARY European Hemp, (*Cannabis sativa*) as distinct from other fibres known to the trade as Sisal hemp (*Agave Sisalana*), Mauritius hemp (*Furcræa Gigantea*), Bowstring hemp (*Sansevieria*), Sunn hemp (*Crotalaria juncea*), Manila hemp (*Musa textilis*) and several others, is cultivated to a limited extent in Cyprus.

There are several varieties of the ordinary European hemp (*Cannabis sativa*) and the principal countries of commercial supply are Russia, Italy and the Balkan States. In most European countries bordering the Mediterranean, hemp is grown for local use, it is also grown to some extent in China, Japan, Persia, India and the United States of America and recently its cultivation has been taken up in Canada.

The fibre is used in the manufacture of ropes and cordage and also as a substitute for the lower grades of flax for textiles. The seed is used as a poultry food and is much appreciated as a food for small birds such as canaries. The seed contains some 30 per cent. of edible oil and in some countries is used as a cheap substitute for linseed oil.

Hemp thrives best on rich alluvial soils but the best quality fibres are grown on medium to rich loams. Dried up river beds are considered to be particularly suitable. Light sandy or heavy clay soils are not suitable.

The field intended for hemp cultivation should be ploughed deeply two to three times then harrowed and rolled if necessary.

Seed may be sown broadcast by hand or in rows by a seed drill and harrowed at time of sowing in order to protect the seed from birds. The rate of sowing depends to a certain extent on the germinating power of the seed. Close sowing is necessary for good fibre production and 15 to 25 okes per acre is the rate generally used according to the germinating capacity of the seed.

The application of organic manure is important and farm-yard manure should be applied whenever possible. If chemical fertilizers are used, a compound fertilizer containing a certain amount of potash is desirable. If the land is properly manured and fertilized hemp can be grown on the same land in succession for a number of years but a suitable crop rotation is nevertheless desirable. At least one hoeing and weeding is necessary and when once the crop is thoroughly established further weeding is hardly necessary as hemp is a powerful weed killer.

The male plants mature first and when they begin to dry up the crop should be harvested. A number of selected female seed bearing plants are usually allowed to remain for seed supply. In harvesting the plants are either pulled up or cut very close to the ground, tied in small bundles and left on the field to dry. As soon as the leaves have withered and fallen off, the stalks are deseeded if necessary, then taken to the retting tank.

The process of retting facilitates the separation of the fibre from the stalk and removes the excess of adhesive material from the fibre. The procedure in retting is to submerge the stalks in water and leave them undisturbed for a number of days until the fibre strands are easily separated. When the ret has been completed it will be found that the fibre has not tensile strength in the wet state. The full tensile strength returns after drying. The fibre should be strong, supple and lustrous and of a pale brown or yellow colour. Extreme whiteness is not desirable. Retting requires a lot of experience and very close attention. The temperature of the water has a considerable effect on the number of days taken to complete the ret and the cooler the water the longer the ret. Care should be taken not to under-ret or over-ret, but under-retting is worse than overretting.

The fibre is extracted by the process of scutching which operation is carried out by breaking the stalks into bits of from one to two inches long without damaging or breaking the fibre and scutching off with a wooden blade the broken bits of stalk, the operation being similar in principle to that employed in the scutching of flax.

The above notes are given as a general guide to the cultivation and preparation of hemp for fibre, in the following paragraphs are given a few notes describing the present position of the hemp industry in Cyprus.

The centre of the hemp-growing industry in Cyprus is in Paphos District. The area planted varies slightly from year to year, but 1,300 donums may be taken as the average. The average yield of long fibre is approximately 60 okes per donum. The seed rate per donum in Cyprus is rather heavy, it amounts to as much as 14 okes per donum. Seed production at its best is two-fold.

Seed for sowing is obtained locally, but during the last few years small quantities of seed have been imported from Syria and in addition seed of the best Italian varieties has been introduced. The imported Syrian seed does not differ to any great extent from the locally-produced seed as far as production and quality are concerned. Investigations with seed of the Italian varieties are being made.

The fibre produced in Cyprus is of fair quality and, if properly prepared, would find a ready market abroad at prices perhaps slightly below those for medium Italian grades. The bulk of the production is spun locally into various sorts of ropes and cordages which are used locally. This spinning is carried out in a primitive manner. The very best land available is used for hemp production and no crop rotation is observed but if hemp was produced on a large scale this practice could not be followed to any great extent. Ploughing is skilfully and carefully done and a generous application of both animal manure and artificial fertilizers is made.

Hoeing and weeding are hardly ever practised. Irrigation is done on a very liberal scale, and an average of ten waterings is given. During each watering the field is given as much water as it can take and cases of over-irrigation are not infrequently observed.

Harvesting is done by pulling. The plants are tied into small bundles and left in the field to dry after which they are taken to the ret. Retting is done in small stone tanks with a constant flow of water which, although it ensures a very white colour of the fibre, is probably to the detriment of the softness of the fibre.

After retting, which takes place in October, the stalks are built in upright conical stacks which are left exposed to the weather during the winter and after the straw is well dried in the spring breaking and scutching takes place. This practice causes much damage and results in over bleaching and weakens the fibre.

Breaking and scutching in winter by power machinery was the subject of experiment last year and a trial consignment prepared in this way and shipped to Belfast was disposed of at a satisfactory price and very favourably reported upon.

Supernumerary Horns of Cyprus Sheep.

BY R. J. ROE, M.R.C.V.S., D.V.S.M.,

Chief Veterinary Officer.

THE existence in the Karpas of a small number of rams possessing four horns is of interest and an attempt is being made to obtain reliable information concerning the origin of this characteristic and the extent to which it is of a hereditary nature. The information hitherto received is somewhat conflicting; according to some persons the first case was seen at Rizokarpaso about the year 1900 in a ram whose descendants later showed the characteristic in Galinoporni, Korovia, Yialousa and other neighbouring villages. Other information is to the effect that the first ram with supernumerary horns at Galinoporni was brought some years ago from Prastion (Messaoia) where many of such animals were then to be found.

According to the owners of these rams and other shepherds in the district, these four-horned rams are stronger and more prolific than other rams; the majority of their male offspring have four or three horns, and their female offspring produce more milk and meat and the wool is increased both in quantity and quality. Despite these local opinions of the improved quality of these animals, it appears that nearly all of the offspring are sold to butchers and only a very few are retained for flock-improvement.

The extra horns are not symmetrical, as a rule; the head appears to be unusually large and the eyelids to be small; the fleece is usually continued on to the forehead.

The information hitherto received suggests that the supernumerary horns are a fixed hereditary characteristic in the males of the first generation and that they are sometimes transmissible through the female to males of the second and later generations.



Four-Horned Ram Rizokarpaso.

The accompanying photographs have been taken by Mr. P.S. Vorgas, Dr. Med. Vet.

Any other information in this connection will be welcomed by me.



Four-Horned Ram—Galinoporni. Now at Veterinary Office, Nicosia.

Downy Mildew of the Vine.

IN view of the serious outbreak of *Peronospora* which occurred last year, it is desirable that vine growers should spray their vines early before the disease becomes established. The Department of Agriculture is again organizing a campaign against the disease and the following is a copy of a notice in poster form which is being circulated freely in all the vine-growing villages :—

PERONOSPORA.

Warning to Vine Growers.



Vine leaf attacked by *Peronospora*.

Upper surface of leaf shows large brown spots surrounded by a brown margin on the lower surface of which forms a yellow and white downy covering. These spots may increase in size and cause the whole leaf to shrivel and destroy the young fruit as well.

As *Peronospora* has occurred in all the principal vine-growing areas of the Island—a severe epidemic is liable to break out at any time should climatic conditions favourable for the spreading of the disease prevail. In the event of such an outbreak the effect on the yield and quality of the grapes would be disastrous.

Peronospora can be controlled by timely spraying or dusting but it is important to *spray or dust early* before the disease is established. The first application should be given not later than when the shoots are from 6 to 8 inches long.

Growers are advised to spray with Bordeaux Mixture, Burgundy Mixture, or one of the ready-made materials which require only to be dissolved in water before use, such as Peronosporini, Bouille Schloesing, Bordinette or Vermorite, etc. Special care should be taken to spray as far as possible the under side of the leaves.

The Department of Agriculture has arranged for special officers, under the direction of the Viticulturist and Wine Expert, to give advice and demonstrate the use of fungicides and spraying machines in the control of *Peronospora*.

Advice regarding all matters connected with *Peronospora* will be given by the Viticulturist and Wine Expert or the officer in charge of the nearest Nursery Garden and these officers will also arrange to issue spraying machines on loan.

DEPARTMENT OF AGRICULTURE,

NICOSIA,

24th February, 1932.

M. T. DAWE,

Director of Agriculture.

List of Stallions licensed for 1932 under the Horse Breeding Law, 1930.

NICOSIA DISTRICT (23 licences).

<i>Village.</i>			<i>Owner's name.</i>
Argaki	..	..	Theofanis Hj. Haralambou.
Akacha	..	..	Michael Toumarafti.
do.	..	..	Pezouna Anastasiou.
Astromeriti	..	..	Demetris Hj. Michael.
do.	..	..	Koumis Hj. Protopapa.
Kapouti	..	..	Georghis Nicola.
Kaimakli	..	..	Christos Michael.
Lefka	..	..	Yiangos G. Boyiadji.
Lymbia	..	..	Andronikos Petri.
do.	..	..	Kyriakos Constantinou.
Lakkatamia, Pano	..	..	Michael Papakyriakou.
Morphou	..	..	Vasilis Tophi Spanos.
do.	..	..	Andreas Akhapittas.
do.	..	..	Kypris L. Skarparis.
Nicosia	..	..	Ahmet Suleiman Kallikas.

NICOSIA DISTRICT—*continued.*

<i>Village.</i>	<i>Owner's name.</i>
Neokhorio	Tophis Hj. Kyriakou Fella.
Peristerona	Varnavas Hj. Papageorgghi.
Petra	Kyriakos Pantazi.
Yerolakko	Michaelis Yianni Koliandri.
do.	Haralambos Sofokli
do.	Hj. Michael Hj. Loi.
Yeri	Yorghos Petri.
Zodia, Pano	Zenon Costi.

FAMAGUSTA DISTRICT (53 licences).

Ayios Andronikos ..	Hassan Salih.
do.	Mahmout Mustafa.
do.	Spyros Georghi.
Ayios Sergios ..	Antonis S. Gizas.
do.	Evagoras Sotiri.
Akhna	Michales G. Matchankou.
do.	Vasilis Varnava.
do.	Pavlos Theodosi.
do.	Elias G. Bettay.
Asha	Antonis Michael.
do.	Hj. Yiannis Kyriakou.
Ayios Elias ..	Therapos Hj. Michael.
Avgorou	Petros Georghiou Petrou.
Davlos	Hj. Manolis L. Pateras.
Eptakomi	Chr. Georghi Hj. Photino.
do.	G. Kyriakou Marouletti.
Galatia	Akil Moustafa Gonie.
Gastria	Antonis Constanti.
do.	Photis Stylianou.
Komi Kebir.. ..	Tomazis Kalli.
do.	Loizos Yerolemou.
do.	Chrisostomos Constantinou.
Kontea	Costis Demetri.
do.	Paraskevas Eleftheri.
do.	Christofis Paraskeva.
do.	Theocharis Alexandrou.
Lefkoniko	Mehmet Salih.
do.	Hj. Georghis Hj. Papamichael.
do.	Christos Hj. Symeou.
do.	Hj. Christos Hepis.
Leonarisso	Chrysanthos Panayi.
Lysi	Minas Lysandrou.
do.	Yiangos M. Katsouris.
do.	Daniel Hj. Papantoni.
Milea	Markos Nicola.
do.	Demetris N. Moustaka,

FAMAGUSTA DISTRICT—*continued.*

<i>Village.</i>		<i>Owner's name.</i>
Melanarga ..	..	Kallis Kyriakou.
Peristeronapiyi ..	..	Zacharias Demetri.
do. ..	..	Andreas Louka.
do. ..	..	Constantis K. Hj. Georghi.
Patriki ..	..	Pantelis Christofaki.
Paralimni ..	..	Andreas K. Xiouri.
do. ..	..	Nicolas A. Skarou.
Rizokarpaso ..	..	Michael P. Lazarides.
do. ..	..	Costas Chrisostomou.
do. ..	..	Panayiotis K. Sakka.
do. ..	..	Serghios Nicolaou.
Trikomo ..	..	Kyriakos G. Tsinikola.
Vatili ..	..	Christos Georghiou.
do. ..	..	Geo. Tophi Hj. Fisendzou.
do. ..	..	Pan. Hj. Georghi Derinioti.
Yialousa ..	..	Pan. Patriotis Hj. Sterko.
do. ..	..	Markos Panayi Pitchi.

LARNACA DISTRICT (16 licences).

Athienou ..	..	Nic. Vrashimi Hj. Pavli.
do. ..	..	Michael Haralambou.
do. ..	..	Costas Gavriel Iydras.
do. ..	..	Yiannakos Nic. Kalapoda.
do. ..	..	Michael Varnava.
Aradippon ..	..	Costis D. Kayia.
do. ..	..	Christofis Hj. Constanti.
do. ..	..	Gregoris S. Orphanou.
do. ..	..	Michael H. Antoniadides.
do. ..	..	Leftheris Towli.
Anaphotia ..	..	Emir Hussein.
Kophino ..	..	Emette Mustafa.
Kalavaso ..	..	Averkios K. Christofides.
Sophtades ..	..	Mulla Hassan Hussein.
Voroklini ..	..	Antonis Christodoulou.
do. ..	..	Panayis Theodosi.

LIMASSOL DISTRICT (11 licences).

Ayia Phyla ..	..	Costis Pan. Silikiotis.
Anoyira ..	..	Thoukis Solomi.
Erimi ..	..	Stephanos Apostoli.
Moni ..	..	Stylianos M. Piperis.
Mesayitonia ..	..	Demetris Karkallis.
Pakhna, Kato ..	..	Theoris Evgeniou.
Pakhna, Pano ..	..	Michael Savva.
Pissouri ..	..	Haris Demetri.
do. ..	..	Zenon Constantinou.
Prastion ..	..	Michael Papapetrou.
Silikou ..	..	Kleanthis Hj. Themistokli.

KYRENIA DISTRICT (20 licences).

<i>Village.</i>	<i>Owner's name.</i>
Asomatos	Michael Hj. Vrashimi.
do.	Antonis Hj. Iosif Hanni.
Ayios Amvrosios	Hj. Demetris Hj. Yianni.
do.	Michael Panayi.
Ayios Ermolaos	Efstathios Christofi.
Ayios Georgios	Nicolas Hj. Towli.
do.	Costis Nicola Spanou.
Agridaki	Haralambos Yianni.
Diorios	Gregoris Hj. Michael.
Dikomo, Kato	Yiannis Louka.
do.	S. K. Demetriades Jirkaji.
Kyrenia	Shakir Hussein.
Klepini	Elegou Hj. Evangeli.
Lapithos	Polykarpos Panayioti.
do.	Artemis Ch. Proestos.
Larnaca-tis-Lapithou	Ioannis Costi.
do.	Christodoulos Stylianou.
do.	Cleanthis Stylianou.
Myrtou	Kleovoulos Stylianou.
do.	Georghios Papanecophytou.

PAPHOS DISTRICT (14 licences).

Amargeti	Mulla Ahmet Mulla Mustafa.
Arodhes, Kato	Hassan Mehmet Ali.
Arodhes, Pano	Harilaos Nicolaou
Drousa	Yiannis Savva.
Inia	Theodosia Nicola.
Ktima	Veli Tselebis.
Kissonerga	Evangelis Hj. Nicola.
do.	Hj. Towlis Haralambou.
Khoulou	Panayiotis Elia.
Lemona	Christofis Papayianni.
Lasa	Georghios Ch. Ellinas.
Loukrounou	Mehmet Salih Ahmet.
Stroumbi	Sophoklis Constanti.
Terra.. ..	Moustafa Yousouf.

R. J. ROE, C.V.O.,
Inspector of Horse Breeding.

Planting Distance of Fruit Trees.

FEW fruit growers in Cyprus realize the importance of planting their young trees at a suitable distance apart. This is especially evident in the citrus groves, but may also be noted in other plantings as well. Many growers are of the opinion that by planting many trees on a given piece of land they will get a greater weight of fruit per donum. In every other country where fruit is grown commercially this policy has been shown to be unsound and when putting down new plantations, Cyprus growers are earnestly requested to pay greater attention to the question of planting distance.

The advantages of a reasonably wide planting distance are numerous, but chiefly among them may be mentioned :—

(a) Facilities given for inter-cultivation by animal or mechanical power.

(b) Economy of water.

(c) Facilities for attention to individual trees in pruning, picking, etc.

(d) Facilities for spraying, fumigation and treatment of diseases.

(e) Benefits to the trees themselves for above reasons and the consequent increased yield per tree.

(f) Facilities for inter-cropping, should that be necessary.

As an illustration of the beneficial effect of an increased planting distance on the yield of oranges, the following example is cited :—In a grove in Palestine the trees were originally planted $3\frac{1}{2}$ metres apart. At the stage when they should have been bearing a good commercial crop they were carrying, on an average once packed case per tree. Sufficient trees were removed to increase the planting distance to $5\frac{1}{2}$ metres and the production increased to five packed cases per tree. This meant an increase from 360 cases to 670 cases per acre.

Planting distance is determined by experience of different types of trees under different conditions, by the growth habits of the species in question and by the amount of water available. In general, no hard and fast rules can be laid down. If moisture is the limiting factor, regardless of the relative productivity of the soil, spacing should be determined by water requirements, though due attention should also be given to growth characteristics.

Corbett states* that "A notable instance of the intelligent and successful application of the principles of moisture in relation to spacing, is found in some of the olive orchards of Northern Africa. Though the usual planting distance of this fruit in irrigated sections, or in regions of ample rainfall is 18 to 22 feet, near Sfax in Tunis the trees are planted 60 to 80 feet apart, making only 7 or 8 to the acre. This arrangement makes a profitable dry-land industry without irrigation, though the mean annual rainfall is only 9·3 inches and though there are often several successive years in which the total precipitation does not exceed 6 inches."

The average planting distances employed in countries experienced in the production of high quality fruits are as follows, in respect of the types of fruit produced in this Colony :—

	<i>Square System.</i>					
	<i>Feet.</i>					
Apples	20
Peaches	20
Apricots	24
Cherries	25
Plums	24
Figs	25
Olives	30
Walnuts	40
Almonds..	25
Bananas	12
Pomegranates	12
Citrus	20

The foregoing list of planting distances is not represented as giving, without question, the correct distance at which the different species should be planted in Cyprus. Conditions may warrant considerable modification of the distances suggested. At the same time it is certain that the majority of types of fruit trees are too closely planted in this Colony and the above figures are intended to give indications of distances found to be most suitable in other fruit-growing countries, upon which planting distance in this Island may be based.

* S.D. Agr. Expt. Sta. Bul. 44, 1895.

EDITORIAL AND ADVERTISEMENT NOTICES.

All communications for publication should be addressed to the Editor *Cyprus Agricultural Journal*, Department of Agriculture, Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts can not be returned unless postage is prepaid.

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Annual subscription payable in advance 16cp. post free. Overseas subscription 18cp. (2/-).

SCALE OF ADVERTISEMENT CHARGES.

A uniform reduced rate is charged for all advertisements which covers their insertion in the English, Greek and Turkish issues respectively.

As special efforts are being made to increase the circulation of the Journal in the Colony and Overseas it may be regarded as a valuable medium for advertising.

The following are the rates in force :—

COVER—Full page, 1 year or 4 insertions	...	£2 15 0
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The “Cyprus Agricultural Journal” is published in March, June, September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

DISTRICT NOTES.

Abstracts from the Annual Reports of the Commissioners, Nicosia, Famagusta, Limassol, Paphos, Larnaca and Kyrenia.

NICOSIA DISTRICT.

Cereals.—Although the area of wheat sown was greater than that of last year the yield was about 27 per cent. less. This poor result is due to unfavourable climatic conditions. The yield of barley was about 40 per cent. less than that of last year. This decrease is due to a smaller total area having been sown owing to the fall in the price of barley during 1930. The quality, however, of the grain was in both cases good.

The yield of oats was about 33 per cent. less than that of last year and this was also due to a reduced area being sown owing to the fall in prices in 1930.

Olives and Olive-oil.—The yield of olives in 1931 was excellent as compared with the poor yield of last year and the quality was good. The quantity of olive-oil expressed in 1931 is estimated at 80 per cent. greater than the quantity yielded in 1930.

Carobs.—This crop which is not a very important one in Nicosia District, except in the Tillyria, yielded 5,353 cantars, as compared with 8,533 in 1930, 4,086 in 1929, 4,533 in 1928 and 5,380 in 1927, being thus slightly below the average for the previous four years. The average price for those four years was 17s. 7cp. The price in 1931 dropped as low as 4s. 4½cp. to 12s., a fall of about 54 per cent.

Grapes.—The grape harvest was moderate, the yield being slightly below the average of the previous four years and 20 per cent. less than that of last year. This is due to hot winds at the time of maturity. Prices remained at the same level.

Orchards.—Orchards of fruit and nut trees are in this district found principally in the Pitsillia. Almonds, apples apricots, kaishas, figs, walnuts and pomegranates did well giving a crop of from 8 per cent. to 50 per cent. more than last year. The production of plums and pears was about 14 per cent. less than in 1930, and of hazelnuts 30 per cent. less. The production of peaches was the same as that of last year. The production of cherries was a total failure yielding 75 per cent. less than in 1930.

Silk.—The production in this industry during the year under review was about 17 per cent. more than that of 1930, and the average of the four previous years.

The quantity of silk reeled was 45 per cent. greater than in 1930 and this is due to the fact that no cocoons were sold to the silk filature at Yeroskipos. 10,366 okes of cocoons were sold to merchants and 1,164 okes were kept by the owners for private use.

Cotton.—The production of this crop in 1931 was 32 per cent. less than in 1930 and this is partly due to reduced cultivation, and partly to climatic conditions which were unfavourable for this crop. Unfortunately the prices obtained were by one-third less than those of the four previous years.

Potatoes.—The yield of this crop in 1931 was better than in 1930 and about 10 per cent. in excess of the average of the four last years. Prices were better maintained than those of most agricultural produce.

Onions.—The cultivation of this crop this year was a failure, the yield being 45 per cent. less than the yield of 1930 and 22 per cent. below the average of the last four years. That was presumably due to unfavourable climatic conditions and is a sad set back to an industry which, as noted in last year's report, appeared to be flourishing greatly.

Broad Beans.—The production of this crop was in 1931 about 20 per cent. less than that of last year and this is due to reduced cultivation owing to the low price obtained in 1930.

Garden Crops.—The yield of French beans was 18 per cent. more than that of last year and of peas 30 per cent. The yield of other garden crops was also about 47 per cent. more than in 1930, but the yield of tomatoes, was less by 17 per cent.

A decrease is also noticeable both in area sown with field crops other than those referred to in detail above, and also the production of such crops as cow-peas, maize, favetta, flax, sesame, cummin and aniseed.

Oranges.—The yield in 1931 was 13,036,680.

The yield of oranges and lemons was 8 per cent. more than the yield of 1930.

Purchase price was from £1 16s. to £3 10s. per 1,000 according to kind and quality.

The prices locally average from £2 to £3 per 1,000.

Livestock Produce.—There was a slight decrease during the year under review in the quantity of milk estimated to have been obtained and in the quantity of cheese manufactured. There was also a slight decrease in the price of milk and cheese. The decrease in the price of cheese may be due to an increased importation of foreign cheese, especially Bulgarian.

The production of local wool was the same as that of last year. The prices in 1931 were 2s. 4cp. to 3s. 3cp. per oke washed and 2s. to 2s. 6cp. unwashed. In 1930 the prices were 2s. to 2s. 2cp. and 1s. 2cp. to 1s. 3cp. respectively.

FAMAGUSTA DISTRICT.

Carobs.—The carob crop was an average one, some 32,657 cantars being collected as against 34,934 in 1930. Prices per cantar ranged from 4s. 4½cp. to 6s.

Silk Cocoons.—Cocoons to a total estimated weight of 23,629 okes were reared in 1931 as compared with 25,956 in the previous year. Here again a considerable decline in prices has to be recorded, these ranging from 7 to 8cp. per oke. On this latter account few of the producers marketed their cocoons, preferring to reel the silk themselves. In 1930 the price had ranged from 1s. 6cp. to 1s. 7½cp. per oke.

Potatoes.—Some 7,490 donums were put under this product, the total yield being 8,526,196 okes. Both seasons proved extremely good and the price ranging from 1cp. to 2cp. per oke, can be regarded as satisfactory. There was a considerable demand for seed-potatoes in Egypt, Palestine and Greece.

Citrus.—(a) Oranges.—This fruit suffered badly, many trees being badly damaged by the cold weather experienced in the spring; again by rain late in June, which caused "June drop"; and finally by strong alternating hot and cold winds during the period when the crop was maturing. The demand has been fair and the prices ranged from 30s. to 40s. per 1,000 for the Jaffa type. Round oranges fetched from 8s. to 10s. per 1,000.

(b) Mandarines.—The output was exceptionally good but there was little demand and prices fluctuated between 4s. and 6s. per 1,000.

(c) Lemons.—Prices ranged from 10s. to 14s. per 1,000 and production proved well up to the average as the trees seem to have been but slightly affected by the adverse condition experienced during the year.

General Remarks.—Although growers and exporters are slowly realizing the necessity for finding new markets, they are slow to grasp the fact that grading and good packing are absolutely essential if those markets, when found, are to be retained. In the past, things were too easy. Shipments to nearby ports were effected in bulk aboard sailing ships; slip-shod methods had little or no effect so long as Greece and Egypt were the countries principally supplied. Now that markets further afield must be sought and acute competition has to be faced, greater care must be exercised and this, principally as it involves additional outlay before consignments are despatched, the people concerned do not like. They cannot or will not grasp the fact that times have changed and that they must adapt themselves to that change. The foregoing remarks apply more

particularly to oranges. It is equally to be regretted that so little has been, or is being, done by exporters to find a market for mandarines. Experience has proved in at any rate one instance that, if properly packed, this most delicate and delicious fruit travels as well as the orange, in fact a small consignment sent to England early in the year arrived in almost perfect condition despite its being some 6 weeks in transit.

Only one citrus-juice-expressing concern remained in operation during the year.

Pomegranates.—From being one of the principal sources of revenue to the fruit-growers of the district this fruit has practically become a drug on the market now that Egypt has almost entirely closed the door to consignments. In all, and despite adverse weather conditions, some 4,292,815 oke were gathered but fetched only from 6 to 18 paras per oke.

The Agricultural Department made every endeavour to find new markets but with slight success and it is to be feared that the day is not far distant when the pomegranate will entirely disappear as a staple product of the district. It has indeed actually dawned, for several agriculturists have already started to grub up their trees and substitute citrus.

Olives.—The year proved exceptionally prolific, both quantity and quality being equally good. Olive-oil sold at prices varying between 7 and 9*cp.* per oke, while olives were marketed at 2 to 3*cp.* per oke.

Cereals.—(a) Wheat.—The harvest was about up to the average except on the Karpas, where, owing in some localities to drought and in others to rust, production was sparse. As regards marketing there was very little demand for the grain during the summer, but an improvement occurred when wheat for seed purposes was purchased by Greece and Turkey. Prices were at the beginning 3*s.* per kilé, and reached later 5*s.* to 5*s.* 4½*cp.* per kilé.

(b) Barley.—Owing to the low prices obtained last year, farmers had considerably reduced the area placed under this crop and production was rather poor, though weather conditions were on the whole quite favourable. The shortage in local barley and the absence of grass or other fodder plant for grazing due to lack of rain at the close of the year caused the price of this commodity to reach as high a figure as 40*cp.* per kilé. A large quantity has been imported.

Cotton.—A large area was planted up and the output was an average one. Prices were very low, ranging from 2½ to 3¼*cp.* per oke.

Tobacco.—The area under tobacco was much reduced owing to the fact that considerable stocks had remained unsold and on the hands of the growers for lack of demand. At the close of the year there was some demand for yellow leaf tobacco from local manufacturers, but the prices offered were not encouraging.

LIMASSOL DISTRICT.

Cereals.—Crops in all cases were below the average. This is attributed to the heavy winter rains which encouraged a growth of grass at the expense of the cereals. In the case of barley another factor was the abnormally low price which discouraged farmers from sowing. Vetches might have been better had they not suffered from an attack of rust.

Carobs.—Though considerably less than that of 1930 the yield of 1931 was excellent. Prices, however, touched a lower level than had ever before been heard of in Cyprus.

The quantity exported in 1931 was more than double the average export of the previous three years, but the value was just about equal to the average value of the exports of the same period.

The stock in hand at the end of the year was said to be about 90,000 cantars.

The two carob-crushing factories in Limassol worked well during the year.

Grapes, Wines and Raisins.—(a) *Grapes.*—*Peronospora* made its appearance for the first time in Limassol District on account of the abnormal dampness of the early part of the summer. Fortunately it did not do any great damage. The vine crop was only moderate being estimated at some 13 millions of okes, or 14 million okes less than in 1930.

(b) *Wine.*—Prices have kept up well and wine villagers are not suffering on account of the universal depression as their less fortunately situated neighbours are. The production of Commandaria was 628 loads as compared with 1,633 loads in 1930. Prices ranged from £2 5s. to £2 18s. a load. Zivania production dwindled from 900,000 okes in 1930 to 362,836 okes in 1931. Prices were from 3 to 6cp. per oke.

Export of Wine.—Exports nearly reached the figure of 2 million gallons, probably a record for Cyprus, and was about 47% better than in 1930.

(c) *Raisins.*—Prices show a distinctly downward tendency but are still considered reasonable. Demand from abroad has slackened so it was not to be expected that the high figure of the 1930 export would again be reached. All things considered, however, the result of the year's business was satisfactory.

PAPHOS DISTRICT.

The harvest was unsatisfactory notwithstanding a copious rainfall spread over the season with late rains in March and April so eagerly desired by the farmers. The area brought under cultivation of wheat was much larger than the previous year, viz, 77,136 donums against 74,711 in 1930. The crop was badly attacked by rust and the yield was very poor.

Owing to the fall in price only 34,565 donums were sown in barley as compared with 54,017 donums in 1930.

Vetches and oats did well.

Carobs.—The carob crop was a good one but prices at the beginning ruled low, opening in September at 5s. per cantar and rising gradually to 10s. in December. The rise in price has benefited the carob merchants more than the growers as they mostly bought on the lower scale, and they have, therefore, recouped themselves to some small extent for their great losses in recent years.

Olives.—The olive crop was a very good one but the prices obtained were low 2 to 3*cp.* per oke. The production of oil was good. It fetched 22½ to 30*cp.* per oke which was considered a satisfactory price.

Onions.—Paphos District is noted for its production of onions. The area brought under cultivation was greater than in previous years, and the crop, most of which was exported to Egypt and Greece, was a very good one, both as regards quantity and quality. Growers disposed of their produce early in the season at prices ranging from 10s. to 12s. per cantar which was deemed a fair price. Later on there was a big demand in Egypt and England when as much as 30s. per cantar was offered, but unfortunately the growers had disposed of their stock.

Grapes.—There was some extension in the planting of vineyards but not so marked as in previous years. The crop was severely attacked by "Peronospora" which greatly lowered production. The export price was 1 to 1½*cp.* which is about average, but growers were disappointed with their small profit owing to the diminished crop.

Raisins.—Notwithstanding the short crop of grapes the production of raisins was greater than in the previous year, due to the fact that the villagers preferred to turn their grapes into raisins rather than wine owing to their poor quality. The output being estimated at 3,247,719 okes as compared with 2,636,330 okes in 1930. The price obtained was about 2½*cp.* per oke which was fairly satisfactory.

Potatoes.—The crop is not very extensive and is consumed more or less locally. The area brought under cultivation remained stationary. The winter crop was free from disease but the summer crop was attacked by tuber moth.

The winter crop was sold at a low price, viz. 30 to 50 paras per oke, the summer crop fetched 1 to 2cp.

Hemp.—This is another crop peculiar to Paphos District. Though the land brought under cultivation was somewhat less than last year, the production was above average, the quality of the fibre very good, but the price realized was only moderate, averaging about 5 to 6½cp. per oke which is the same as last year's.

Sericulture.—The distribution of silkworm eggs was 1,805 ounces against 2,662 ounces for 1930. The production of cocoons was, therefore, much below average being estimated at 39,288 okes as compared with 59,222 for 1930. The fall in sericulture is attributed to the low prices ruling for cocoons in 1930 which fell to 13cp. per oke (the price in 1929 being 25cp. per oke), which was hardly remunerative to the villagers, and for this reason the latter kept a large proportion of their cocoons and reeled them for local consumption.

LARNACA DISTRICT.

Cereals.—The estimated figures for crops as stated by Mukhtars were :—

			3-year average			
			1928-30			1931
			—			—
Wheat	..	..	260,397	..	..	250,701
Barley	..	..	410,036	..	..	204,669
Vetches	..	..	23,926	..	..	37,227
Oats	..	..	35,020	..	..	14,973

After the harvest of 1931 wheat fell in price to as low as 32-33cp. per kilé but as the autumn advanced it recovered to 45cp. for seed wheat. Another factor in its recovery was the increased cost of imported flour due to sterling depreciation. The cost of barley remained comparatively high since the 1931 harvest. Owing to heavy production in 1930 and lack of demand only a small area was sown for the 1931 harvest. Conditions were not favourable and the result was that at one time during 1931 the local price of barley was almost the same as that of Cyprus wheat.

Carobs.—The yield of this crop was good and only 15% less than that of 1930 which again was a good year.

Prices began to drop in 1930 and at the beginning of September, 1931, the price was 5s. per cantar. Since then there has been a gradual increase and the price at the end of 1931 was between 9s. and 10s. with a tendency to rise.

Olives.—Prospects for olives appeared good. There was plenty of fruit formed on the trees but lack of rain in October and November caused the fruit to shrivel with a consequent reduction in the amount of oil.

KYRENIA DISTRICT.

The production of most crops during the year under review has been, on the whole an average one. The continual rainfall during the first quarter did some damage to barley, but it provided on the other hand an adequate supply of water for the summer crops. Owing to the long dry period which continued towards the end of November, very little damage was caused by fungi, but the preparation of land for the sowing of cereals was somewhat delayed. The marketing of products has, all things considered, been fairly satisfactory, demand and prices remaining steady for the greater part of the year. During the last quarter, however, an improvement in prices for practically all produce was observed.

Wheat.—The area under cultivation was somewhat increased, but the production was slightly below the average.

Barley.—The low price offered for this cereal in 1930 caused a reduction in the amount sown this year. The production was very poor owing to a continual and heavy rainfall during the first quarter. In consequence prices improved and large quantities were imported.

Oats.—A small area was sown to this product, of which only limited quantities were harvested, a greater part having been consumed as forage.

Carobs.—The production of carobs was well up to the average and very little damage by "*Brachycarpia*" was recorded. Price improved towards the end of the year, and there was a tendency of further improvement. The first shipment of the new crop was made at the beginning of December.

Olives.—A fair yield of this crop was obtained, and damage done by *dacus oleæ* was almost negligible. The methods employed in picking and for the extraction of oil, leave much to be desired, and are in many villages very primitive.

Cotton.—The weather conditions were very favourable especially during the period of maturing and harvesting. The results obtained from "Mesowhite" of which a small quantity of seed was sold to farmers, are very satisfactory.

Tobacco.—The total production was considerably less compared with 1930, but an improvement in quality was observed. Market conditions remained dull throughout the year and very low prices were offered.

Potatoes.—The summer crop was fair but the winter production was below the average owing to the failure of the germination of the seed used. There was a good demand from abroad, and considerable quantities were exported to Greece from this district.

Onions.—The production of onion sets and the main crop was satisfactory.

Citrus.—There has been an average yield and particularly in regard to mandarines. It is estimated that the production of lemons at the villages of Karavas and Lapithos, which are the principal centres of lemon growing in this district, amounts to approximately 10 millions as compared with 15 millions last year.

Pomegranates.—The small crop of this fruit produced in certain parts of this district was practically consumed locally.

Apricots.—The yield has been satisfactory ; a small quantity of dried fruit was exported to Egypt from Ayios Amvrosios.

Silk Industry.—The production of cocoons during the year was slightly less than the previous year, averaging 22 okes per ounce of eggs. The quantity of eggs bought for hatching was also reduced. It has been estimated that 1,742 ounces were sold and approximately 200 ounces remained unsold and were destroyed by the various dealers.



Flag Smut of Wheat.

A DISEASE which is of common occurrence in Cyprus and one which must cause a considerable loss to wheat growers is the "Flag" or "Stripe" Smut. This disease, caused by the fungus *Urocystis tritici*, as the name indicates attacks the leaf blades and sheaths.

The disease first becomes visible as long greyish, slightly swollen, stripes or lines running parallel to the veins of the leaf. On reaching maturity these swollen stripes burst and expose a powdery mass of black spores.

Usually every shoot of a plant is infected ; the leaves become twisted and eventually withered. Such infected plants frequently bear no grain. When grain is formed it is usually much shrivelled.

Infection of the wheat seedling takes place, as in the case of bunt of wheat, below ground ; but it is not necessary for the spores to be sown along with the grain. It has been shown that the spores can retain their vitality in the soil and can infect a following wheat crop. A field, therefore, that has borne a diseased crop should not be sown again with wheat until after as long an interval as possible.

The smut spores are often carried on the outside of the grain. These can be killed by treatment of the grain with formalin, as in the treatment of wheat or bunt. This will prevent the disease from becoming established in otherwise clean land, but will not protect the crop if the land is already contaminated. If hand weeding is resorted to all infected plants seen should be gathered and destroyed. Wheat crops should be inspected for the disease in the early stages of growth. At harvest time the disease is not readily seen.

NOTICE

GOVERNMENT Stud Animals will be stationed as follows until further notice :—

Stallions.

Name or number					Where stationed
TEMERAIRE .. ..	..	..	..	..	Athalassa.
WATERKOSCIE .. ..	..	..	..	..	Lefkoniko.
MOLESKIN .. ..	..	..	..	..	Larnaca.
PITCHFORD .. ..	..	..	..	..	Famagusta.
DOLMA BAGCHE .. ..	..	..	..	..	Ayios Theodoros.
MAZARIN .. ..	..	..	..	..	do.
CORBY BRIDGE .. ..	..	..	..	..	Yialousa.
MILLSTREAM .. ..	..	..	..	..	Rizokarpaso.
CANTERBURY .. ..	..	..	..	..	Paphos.
LIFE LINE .. ..	..	..	..	..	Vatili.
LLWYNOG'S MODEL .. ..	..	..	..	..	Polis.
MARCHER LORD .. ..	..	..	..	..	Athalassa.
FRIARS FLUTTER .. ..	..	..	..	..	Limassol

Bulls.

No. 85/374 Half Bred .. ..	..	..	..	Kyrenia. Mr. Haralambides.
„ 105/394 Shorthorn .. ..	..	..	..	Athalassa.
„ 126/415 Native .. ..	..	..	..	Ayios Theodoros.
„ 133/422 Dutch Bull .. ..	..	..	..	Athalassa.
„ 135/424 Half Bred .. ..	..	..	..	Limassol.
„ 137/426 Native .. ..	..	..	..	Polis.
„ 138/427 Ayrshire .. ..	..	..	..	Athalassa.
„ 139/428 do. .. ..	..	..	..	Larnaca.
„ 141/430 Half Bred .. ..	..	..	..	Athalassa.
„ 143/432 Half Bred .. ..	..	..	..	do.
„ 144/433 do. .. ..	..	..	..	Agricultural Dept., Nicosia.
„ 145/434 Native .. ..	..	..	..	Rizokarpaso.
„ 146/435 do. .. ..	..	..	..	Famagusta.
„ 147/436 do. .. ..	..	..	..	Polemi. Mr. G. Theophanides.
„ 148/437 do. .. ..	..	..	..	Paphos.
„ 149/438 do. .. ..	..	..	..	Vatili.
„ 150/439 do. .. ..	..	..	..	Yialousa.
„ 154/443 do. .. ..	..	..	..	Lefkoniko.

The Cyprus Agricultural Journal.

A QUARTERLY REVIEW
OF THE
AGRICULTURE, FORESTRY AND TRADE OF CYPRUS.

Vol. XXVII., Part 2.

JUNE, 1932.

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EDITORIAL NOTES.

AS was the case when we went to press last month, attention in agricultural affairs is mainly centred in the effects of the drought past, present and future. So far as cereal crops are concerned, the outlook is not so serious as was at one time feared. The subsequent rains, though light, with the spell of cool weather, which we had till towards the end of May, brought the cereals along in a remarkable way and where it was expected there would be an entire failure, there will be some return varying between 25 and 50% of that of last year. It is estimated that the cereal crop in general will average scarcely half of last year's crop in grain and about three-tenths in straw.

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The position in regard to grazing and forage has been eased, by the grazing off of barley and wheat fields which would not pay to harvest, by the grazing facilities afforded by the Forestry Department in forest areas and by the import of fodder. The Department of Agriculture has afforded considerable assistance to the farmers by importing from Palestine and Egypt seed maize on a large scale and issuing same to farmers free of charge to grow for food, green fodder and silage. There should, therefore, be ample supplies of green fodder to substitute dry fodder until next rains and, if the advice of the Department of Agriculture is taken, there should be a good deal of silage to substitute straw until next harvest. Farmers are requested to refer to the leading article on Maize published in the "Agricultural Supplement" for April and to consider what they can do to produce silage as a substitute for straw. Further information on the making of silage may be obtained from any District Agricultural Officer.

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The shortage of rain during the last four months of 1931 and first four months of 1932 is beginning to be reflected in the underground water supplies which are diminished. In many villages wells have practically dried up and the supplies of several

important "chains of wells" have seriously diminished. It is feared that this will have a serious consequence on the planting of Summer crops and it is not unlikely there will be a shortage of drinking water in the Autumn. It is said that the famous Kythraea water supply shows signs of diminishing. Summer cultivation will, therefore, this year be very hazardous and the melon crop is expected to be a poor one.

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A Farmers' Day was organized on the 22nd May, 1932, by the Department of Agriculture who invited farmers from the districts to visit Morphou and inspect the cereal experiment fields of the Department nearby. The General Manager of the Railway very kindly arranged to run a Farmers' Day special train from Famagusta to the Farm and back at cheap return fares and a good number of farmers took advantage of this facility which was greatly appreciated. Others in the Messaoria, who live some distance from the Railway Stations, came by motor conveyances as also did others from other localities. Over 250 farmers responded to the invitation to attend the first Farmers' Day organized in Cyprus.

The Colonial Secretary, the Hon. H. Henniker-Heaton, Esq., C.M.G., addressed the farmers and welcomed them on behalf of the Government and referred to the value of the work which the Department of Agriculture have in progress on its Farm lands and particularly of the value of the wheat trials. The Director of Agriculture (Mr. M. T. Dawe, O.B.E.) outlined the objects of the experiments and explained how the cereal fields, which cover 200 donums, were divided and the results that the experiments have so far given. The Mayor of Morphou thanked the Government for the assistance which it is giving the farmers and the Director of Agriculture for the scheme of agricultural development initiated by him, particularly that of the proposed Central Experiment Farm and Agricultural College which he hoped would soon materialize.

The farmers were then conducted by the Agricultural Department's Staff around the fields and the objects of the different trials were explained to them in detail.

The visitors expressed surprise at the excellent condition of most wheat varieties since the fields were unirrigated. It speaks volumes for the results of suitable dry farming methods, particularly at this time of drought, when most unirrigated cereals in the vicinity have been either a complete or partial failure. They were very interested in varieties from Palestine, Algeria, Morocco, Italy and Australia and were seen to take careful note of those kinds which they thought may prove suitable for their own farms.

The drought in the past Winter and Spring has caused very severe financial loss to flock owners either because of the need for unusually heavy expenditure on forage for hand-feeding the flocks, or (especially where this extra food was not given) because of severe mortality both of adult and of newly-born animals, abortion, and reduction in milk supply.

Whereas the returns of official counting of sheep and goats on 1st March last show reductions of only 1,200 sheep and 15,000 goats in the whole Colony as compared with the returns for the previous year, it should be remembered that these figures apply only to sheep and goats over one year old and that the actual reduction in numbers is very considerably greater than these figures suggest.

In the returns of the Anthrax vaccinations which began on 16th May, 1932, there is a very considerable reduction in the number of lambs and kids. In many areas there are no kids and in others there are only a few which will soon be slaughtered. It is, therefore, anticipated that the counting in March, 1933, will show more effectively the serious losses which flock owners have suffered in the recent drought.

At the date of the enumeration, large numbers of animals were grazing in districts other than those in which they were located on the same date in previous years and, therefore, the increases and decreases in the numbers in each district cannot be regarded as true indications of the distribution of the mortality. In the Tilliria the official returns show a reduction of over 30% of the goats.

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One important effect of the bad season has been the impetus which it has given to flock owners to seek and to adopt advice in regard to better methods of flock-husbandry. In many areas the sheep and goats are now being regularly dipped for tick destruction and treated for stomach worm infection whereas hitherto the advice of the Veterinary Service in these directions has been regarded with apathy or distrust.

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The Anthrax vaccination campaign commenced on 16th May, and, despite sundry delays in the early stages, over fifty thousand animals were treated during the first week. In the second week the progress increased to over nine thousand animals per day. The beneficial effects of this vaccination are now generally realized and only a very few flock owners need to be prosecuted for failure to comply with the Vaccination orders.

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The Anthrax vaccines, hitherto purchased from France or South Africa, will in future be prepared locally and in fact the first batch of over 250,000 doses for sheep have already been issued from the Veterinary Laboratory, Nicosia, and are now being used.

Conditions appear to have been exceptionally favourable during the past months for the development and increase of several insect pests. The damage caused to vines, especially in the Pitsillia area, by the larvæ of the Vine Bud Moth, *Zygæna ampelophaga*, Bayle ("Sirividhi of the Vine") has been considerably greater than usual and special assistance was given by the Agricultural Department, by the loan of spraying machines and by visits of officers to give instructions and demonstrations of their use, to encourage growers to take the necessary measures against this pest.

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A considerable amount of spraying against Aphis has also been found necessary, growers in Famagusta District having shown themselves very willing to apply sprayings against these insects.

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Damage has also been caused to vine flowers which were just about to open, by the attacks of the beetle *Omophlus propagatus*, Kirsch., which in some areas destroyed a considerable proportion of the vine flowers. This insect has also attacked olive flowers this year and previous years but it does not appear to have attacked vines to a serious extent previously.

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On flax, too, the lack of rain and consequently of irrigation, has had a disastrous effect. There is practically no flax crop this year in the Zodia region, and a very poor one in the Messaoria. Paphos is in a more favoured position, and although the flax remained short, a fairly satisfactory linseed crop can be recorded. Imported varieties, more particularly Hunters Hybrid, have done very well under irrigation and in places without irrigation they did better than Native. The Departmental experimental field at Margo was probably the best flax field all round of the year. In some respects, however, it has been beaten by a "J.W.S." field at Kouklia, Messaoria. This field was less regular and uniform than the Departmental and less clean, but the flax reached the very satisfactory height of 40 inches. It is worth noticing that it had been sown at the rate of 10 okes per donum in January, after the barley which had been sown in October had been cut for green fodder. This flax has by now been pulled and cotton sown in its place; three crops in eleven months. Prices for flax fibre locally have responded to the present shortage and gone up by about 40%. Prices abroad also are showing the same tendency, but the increase is so far one of 15 to 20% only.

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The same adverse factors which have affected flax will no doubt affect hemp; farmers anticipate a shortage in irrigation water and will reduce the area.

The lifting of the Summer crop of potatoes is progressing and a good crop is certain. Owing to the recent shortage of potatoes on the United Kingdom market, and to the tariff on potatoes from foreign sources, which gives a preference to Cyprus potatoes, considerable quantities of potatoes have and are being shipped to the United Kingdom. During the first four months of the year over 14,000 cwt. were exported to English ports and large quantities have also been shipped in May. Prices, however, are now weakening. Cyprus potatoes have, however, made a good impression in Covent Garden and a representative of an important Covent Garden firm recently visited Cyprus to enquire into the prospects of future trade in potatoes.

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During the last week in May, Mr. W. Michaels, representative of the important fruit importers of Hamburg, Messrs. Timm & Gerstenkorn, visited Cyprus to study the prospects of obtaining shipments of oranges for the Hamburg market next season. Messrs. Timm & Gerstenkorn have taken a keen interest in developing trade with Cyprus and have been in constant communication with the Department of Agriculture for the last two years.

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The "Brotherhood of Lefkoniko," an association of farmers recently established to promote the interests of farmers and farming in that village, have decided to offer prizes for the best barley and wheat grown this year and the best selected seed wheat and seed barley. A Committee formed of notable farmers of the village, with a senior officer of the Agricultural Department (Mr. Chr. Pelaghias), recently inspected the fields and awarded the prizes.

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The Secretary of the Old Students' Club organized an excursion to Palestine and Syria between the 24th April and 5th May. The Assistant Director of Agriculture headed the excursion in Palestine and the party visited the Levant Fair at Tel-Aviv, the citrus groves at Jaffa, the Mikveh Israel College, the Government Experimental Stations at Jericho, and the Stock Farm at Acre. A section of the party visited many places of agricultural interest in Syria along the coast between Palestine and Beirut.

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The cocoon season is advancing and already (31st May) a considerable quantity of cocoons have appeared on the market. The quality of the cocoons is very good on the whole but relatively light in weight owing to the very dry weather. The Cyprus Silk Filature has reopened this year and we are pleased to learn that all the merchants have made forward contracts to supply the Filature with cocoons. It is unfortunate that the price of silk remains very low and that satisfactory prices can not at present be paid. It is hoped, however, that producer and merchant

will co-operate with the Filature and so help to develop this important local industry on lines which will prove of lasting benefit to the Island. It is understood that there is still a stock of some 12,500 kilos of old Cyprus cocoons in Marseilles unsold owing to low prices offered ; producers, therefore, should welcome the reopening of a local market.

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Advices from the Viticulturist and Wine Expert dated the 30th May, state that the vineyards in the Limassol District are in a very satisfactory condition and that "Peronospora" of the Vine has not yet made its appearance anywhere. This is satisfactory and if the present dry weather lasts another ten days into June, it is hoped no "Peronospora" will appear this year and in this case the crop is expected to be an abundant one.

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The effect of the abnormally dry conditions during the past months is reflected in the slight intensity and late appearance of many of the well known fungus diseases. Rust of cereals has been conspicuously absent, though these crops have suffered severely from attacks of the Smut fungi. The Late Blight of Potatoes, as well as the "Peronospora" disease of the Vine, both of which were already established this time last year, has fortunately not yet appeared.

* * * * *

The Levant Fair of Tel-Aviv, Palestine, which, as stated in our note on this subject in the March issue, opened on 7th April, closed on 9th May and the Exhibition Commissioner, Mr. P. Symeonides, returned with the exhibits on 26th May.

The Cyprus Pavilion was, according to general public opinion, the best in the Fair representing fully the production of the Island from the point of view of agriculture, industries and handicrafts. Visitors to the Pavilion have expressed wonder at the great variety of exhibits and admiration for the high quality of our varied products.

Numerous trade enquiries have been received and there is no doubt that our exhibit has brought us into closer trade relations with Palestine and it is hoped that trade will result in due course with other countries.

The tourist section of the Pavilion, with photographic display of hotels and scenery, attracted a good deal of attention and made much impression on visitors. Advertising matter was widely distributed and there is every reason to suppose that there will be a great influx of visitors to Cyprus this year and it is hoped that hotels will cater for their requirements so that they will become regular visitors to the Island in future years.

Several awards have been made for various exhibits (gold and silver medals and diplomas) and a full report on the participation of Cyprus in the Fair will be published shortly.

The threshing scheme to which reference was made in the "Editorial Notes" of the March issue of this Journal is now in operation. One of the threshers, a 3' 6" size portable Garrett threshing machine, driven by a Rushton Tractor, is now threshing at Ashelia Chiftlik, Paphos District. Three other machines of the same size but of different types, manufactured by the following firms: Messrs. Clayton & Shuttleworth, Ltd., Messrs. Marshall Sons & Co., Ltd., and The Bon Accord Engineering Co., Ltd., are on their way and expected to be landed in Cyprus at an early date. The above-mentioned threshers will be driven by a "Clayton Diesel Tractor," a "Marshall Diesel Tractor" and a "Rushton Roadless Tractor," respectively.

The machines as they arrive will be allotted to definite areas for hiring out to farmers. The threshing rates fixed to commence with are 7 paras per oke for wheat, 5 paras per oke for barley and 4 paras per oke for oats. Forms of application for use of a thresher may be had on application to the Agricultural Officer of the District in which the farmer is resident and early application should be made for the services of a thresher so that an itinerary and programme can be drawn up for every cereal-growing area. Farmers are invited to read the article on "Threshing by Portable Power Threshers" which was published in the "Agricultural Supplement" for May, 1932.

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Mr. Luke Z. Pierides of Larnaca, writes under the date of 3rd May as follows:—

"It might interest some of your readers to know that seven little egrets (*Egretta garzetta*) were seen this morning at 9.30 a.m. on a tree near the Court House."

* * * * *

A booklet entitled "Insect Pests and Fungus Diseases of Cyprus and their Control" has just been published in Greek and may be obtained from the Government Printing Office, Nicosia, or from any officer in charge of a Nursery Garden, price 4½cp., post free.

This booklet contains 56 pages and text with twelve illustrations and an index, and gives short accounts of the principal pests and diseases of crops and trees in Cyprus with instructions as to the methods by which damage by them may be prevented or mitigated. Instructions are also given for preparing and applying the various materials for the spraying and other treatments recommended.

Editions of this booklet in English and Turkish will be ready shortly.

Obituary.

We regret to announce the death of Mr. Socratis Kyritsis, Senior Sericultural Inspector, which occurred on the 18th May, 1932.

Mr. Kyritsis was the first student of the Agricultural School which opened in 1911 and, since he joined the service in 1914, he has been a devoted and loyal member of the Agricultural Department.

* * * * *

The Agricultural Department has learned with regret of the death of Mr. S. W. Caruana, Chief Clerk, Treasury, which occurred on the 17th May, 1932.

Mr. Caruana assisted in reorganizing the Correspondence Branch of the Agricultural Department in 1928 and was Secretary to the Trade Mission in 1930. His services in both cases were greatly appreciated.

Report on Peppermint Oil from Cyprus.

BY THE IMPERIAL INSTITUTE.

THE two samples of peppermint oil which are the subject of this report were forwarded to the Imperial Institute by the Director of Agriculture and are referred to in his letter No. Agr. 609/1928 on the 13th November, 1931.

Both samples had been distilled from peppermint plants recently introduced from England and grown at Trikoutcha, one representing the oil from the "black" variety and the other that from the "white."

DESCRIPTION.

No. I.—"Black Mint" (weight about 4 oz.)

This was a clear, yellowish-green oil with a fairly satisfactory odour.

No. II.—"White Mint" (weight about 3 oz.)

This was a clear, yellowish-green oil, the odour of which was not so pleasant as that of sample No. I., but better than those of samples of peppermint oil previously received at the Imperial Institute from Cyprus.

RESULTS OF EXAMINATION.

The oils were found to have the following constants, which are shown in comparison with those obtained (a) for the sample of peppermint oil from Cyprus which was the subject of Imperial Institute report of the 25th July, 1930, (b) and (c) those dealt with in the reports dated 30th January, 1928, and (d) 9th February, 1927; together with the ranges recorded by Parry for English and American peppermint oils and Japanese dementholized oil:—

	Present Samples.		Previous Samples from Cyprus.				English Pepper- mint Oil	American Pepper- mint Oil	Japanese Dementho- lized Oil
	"Black"	"White"	(a) (1930)	(b) (1928)	(c) (1928)	(d) (1927)			
Specific Gravity at 15.5/15.5°C	0.9137	0.9228	0.9228*	0.961*	0.928*	0.937*	0.900 to 0.912	0.899 to 0.915	0.895 to 0.905
Optical Rotation α_D	-20.75° at 18°C	-30.3° at 18°C	-3.79° at 21°C	+14.5°	-10.9°	+22°	-23° to -33°	-20° to -35°	-26° to -35°
Refractive Index $n_D^{20^\circ C}$..	1.4630	1.4642	1.463	1.482	1.468	1.482	1.4600 to 1.4640	1.4600 to 1.4635	1.4590 to 1.4630
Acid Value	0.8	1.2	1.4	—	—	—	—	—	—
Ester Value	25.9	83.1	100.7	—	—	—	—	—	—
Equivalent to esters (as men- thyl acetate) per cent. ..	9.2	29.4	35.6	—	—	—	3 to 21	5 to 9	5 to 17
Ester Value after acetylation..	200.1	202.6	213	132.5	140.0	93.0	—	—	—
Equivalent to total acetyl- isable constituents (as men- thol), per cent.	65.6	66.6	70.6	41.0	43.5	27.9	50 to 68	48 to 63	40 to 54
Solubility in 70 per cent. alco- hol at 15.5°C	Soluble in 3.0 vols.	Not soluble even with 13 vols.	Not soluble even with 13 vols. †	—	—	—	—	Soluble in 3 to 5 vols. sometimes with opale- scent.	—
Solubility in 80 per cent. alco- hol at 15.5°C	—	Soluble in 1.2 vols.	—	—	—	—	—	—	—

* Specific Gravity at 15°/15°C.

† Determined at 15°C.

The present oils were similar in that they both contained a large percentage of "total menthol," but they differed considerably in some of their other constants. It will be observed that the constants of the oil from the "black" mint agreed in most cases with those of English and American peppermint oils, but that the oil from the "white" mint corresponded more closely with the last sample of peppermint oil received from Cyprus as it possessed a high specific gravity, contained a high percentage of esters, and was insoluble in 70% alcohol.

It is of interest that the "black" mint furnished the superior oil, as in England the "white" variety usually yields oil of better quality, though in smaller quantity. From recorded analyses it would appear that the oil obtained from "white" mint generally contains a higher percentage of esters than that from "black" mint, and this is markedly true in the present instance.

COMMERCIAL VALUE.

The oils, together with a statement of the results of their examination at the Imperial Institute, were submitted to (a) essential oil distillers, and (b) importers in London, who furnished the following reports respectively :—

(a) "The oil distilled from 'black' plants is quite good, but the odour is not that of English peppermint oil; it is similar to Italo-Mitcham. It is very powerful, so the oil should find a ready sale for certain types of confectionery and dental creams. The specific gravity is high, as also is the menthol content, but both are within the limits.

The oil from 'white' plants is quite abnormal in odour and flavour. Doubtless this is due to the very high ester content of 29.4% as against the usual 7%. The specific gravity, ester content and solubility of the oil are also abnormal.

Owing to the unusual flavour of the 'white' oil we doubt if a market could be readily found for it, but for the oil from 'black' plants a price could probably be obtained near to that of the other Mitcham type oils which reach this country from Italy, France, etc.; the value to-day being in the region of 10s. 6d. to 11s. 6d. per lb."

(b) "We have examined these samples by the nose, and find that obtained from the 'black' mint to be of very good aroma and very much preferable to the American natural oil. The characteristics, as given by you, appear to conform to the requirements of the British Pharmacopœia and to be particularly high in ester content (as menthyl acetate) and menthol content.

We should say that the commercial value of this oil should be higher than the Franco- and Italo- Mitcham oils, which are about 11s. to 12s. per pound, and, in view of the fact that it is an 'Empire' product, and thus (we presume) will not be liable to the 10% ad valorem duty, it should be well worth placing on the market. Our idea of value is about 13s. to 14s. per lb., but it is difficult to give any hard and fast figure without having an opportunity of placing it before the trade.

If you have a grower who intends to put this product on the market on a commercial scale we would be very glad to look after his interests and receive consignments of the oil. We have been closely identified with American peppermint oil for over 35 years and believe we could look after the interests of a shipper.

The oil from the 'white' mint is extraordinarily high in ester content but does not comply with the requirements of the British Pharmacopoeia as regards its specific gravity and solubility, and it is difficult, therefore, to place a value on it. It might prove of considerable interest to manufacturers of menthol in this country, but we should need larger samples to try out its value in this respect before expressing an opinion as to the price one could realize for it."

REMARKS.

The present investigation shows that oil of very satisfactory quality and definite commercial value has now been produced in Cyprus from the 'black' variety of peppermint introduced from England, but it remains to be seen whether the quality of the oil obtained from this stock of plants will be maintained in successive seasons. It will be of interest to learn whether it is proposed to produce this oil on a commercial scale, in which case, if the quality proves to be constant, the Institute will be glad to assist in marketing trial consignments through the importers whose report is quoted above.

It would be desirable to forward a further and larger quantity (not less than 1lb.) of the oil from the "white" variety, in order to ascertain whether its characters are maintained in another season and to enable a sample to be supplied to the importers for submission to possible users.



Report on Pomegranate Juice from Cyprus.

BY THE IMPERIAL INSTITUTE.

THE two samples of pomegranate juice which are the subject of this report, were forwarded to the Imperial Institute by the Director of Agriculture, and are referred to in his letter Agr. 616/1930 of the 4th November, 1931. It was desired to ascertain their quality in connection with investigations which are being made by the Department as to the possibility of marketing pomegranate juice in the United Kingdom or elsewhere.

DESCRIPTION.

The samples consisted of about 1 pint each of "sour" and "sweet" pomegranate juice. The "sour" juice was a turbid, purplish-brown liquid; the "sweet" juice was of similar appearance except that it had a less purplish tint.

RESULTS OF EXAMINATION.

The juices were examined with the following results, which are expressed as parts by weight in 100 parts by volume of juice :—

	<i>" Sour "</i>		<i>" Sweet "</i>	
	—		—	
	%		%	
Total Solids	16.9	..	17.7	
Total Soluble Solids	16.6	..	17.6	
Total Sugars (expressed as invert sugar)	12.6	..	14.6	
Sucrose	nil	..	nil	
Acidity (expressed as anhydrous citric acid)	1.7	..	0.4	

The following figures for pomegranate juice have been recorded in Circular 98 of the United States Department of Agriculture :—

	<i>Range</i>	<i>Average</i>
	—	—
	%	%
Soluble Solids	16.0–20.0	.. 17
Total Sugars (expressed as invert sugar)	11.5–16.4	.. 13.8
Sucrose	nil to 0.7	.. —
Acidity	0.9 to 2.6	.. 1.8

It will be seen that the figures obtained for the present samples of "sour" and "sweet" juice fall within the above ranges (except the acidity of the "sweet" juice) and the products may thus be regarded as of normal character.

COMMERCIAL VALUE.

There does not appear to be any market at the present time for pomegranate juice either in the United Kingdom or on the Continent of Europe, but firms consulted by the Imperial Institute have expressed the view that although the juice is too insipid to be used by itself, it might be usefully blended with citrus juices for the preparation of beverages. One firm expressed their willingness to carry out a series of experiments in this direction, if they could be supplied with two gallons of the raw juice, one gallon preserved with 350 parts of sulphur dioxide per million and the other with 600 parts of benzoate of soda per million.

REMARKS.

It is uncertain whether it will be found possible to create a profitable demand for pomegranate juice in the United Kingdom, but the question cannot be decided without practical trials of the juice as an ingredient of mixed fruit juices for beverages. It is therefore suggested that advantage might be taken of the offer of the firm mentioned above to carry out preliminary tests with samples of the juice preserved in the manner described.

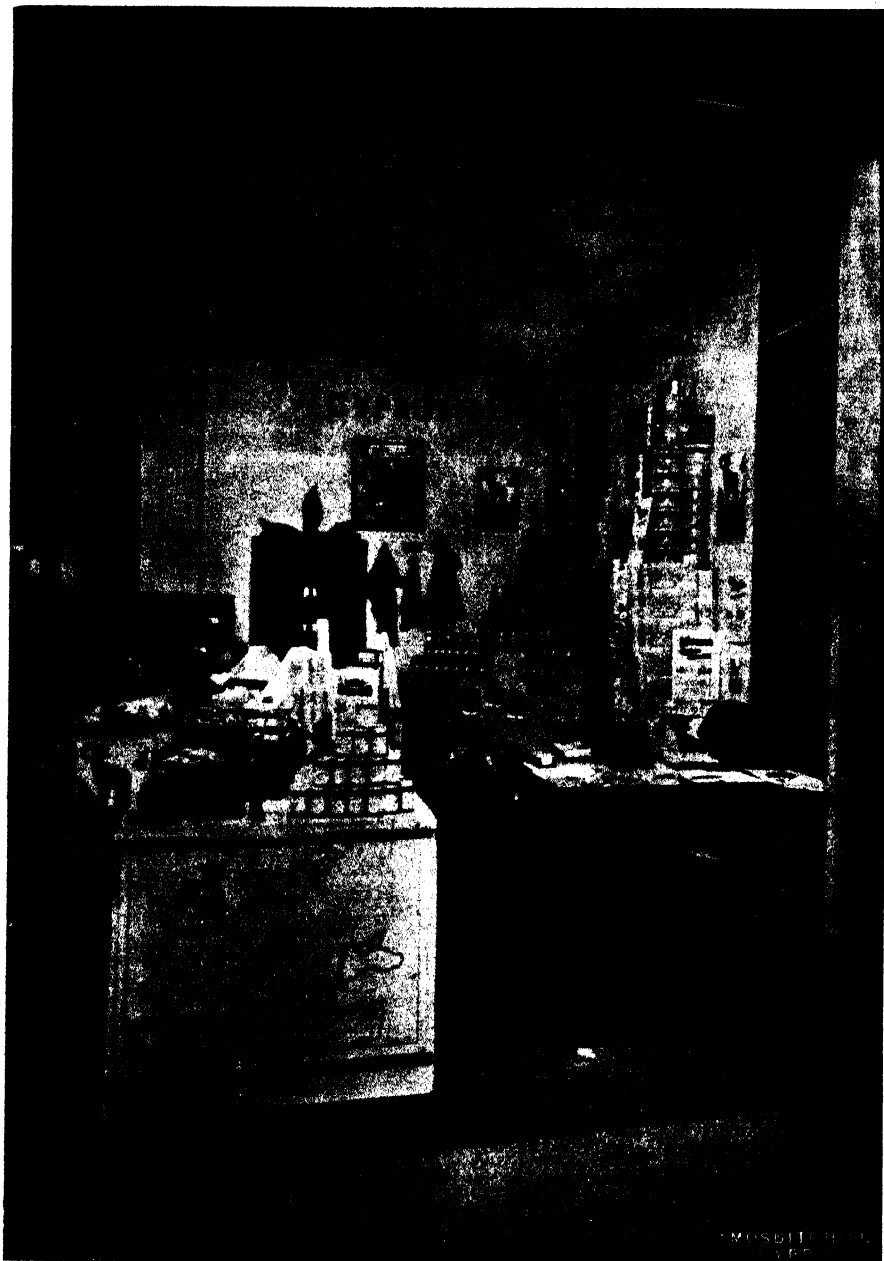
Participation of Cyprus in the British Industries Fair, 1932.

THE Trade Commissioner reports that the British Industries Fair was held at Olympia. Cyprus took part in it for the fifth year in succession with, in addition to the customary general display, a special exhibit of honey. The Cyprus stand, of which a photograph is appended, was honoured with a visit by Princess Alice, Countess of Athlone, and the Earl of Athlone and by the Secretary of State for Dominion Affairs. The Fair was attended by 10,000 overseas buyers from 79 countries, 279,000 home buyers, and 40,000 members of the public, a very considerable increase over the figures for 1931.

Fears that the continued trade depression would cause a lack of interest were entirely removed on the opening day, and the results were in every way satisfactory. Trade enquiries were received from Canada, Bermuda, Belgium, Sweden and Denmark as well as from all parts of Great Britain and Northern Ireland, chiefly for cigarettes, lace and embroidery, dried fruits, oil seeds, and honey, and these were followed up by correspondence where necessary. Owing to the remarkably full attendance, it was impossible to keep an accurate record of verbal enquiries settled on the spot.

The sales of samples (cigarettes, marmalade, honey, and Turkish delight) amounted to over £80 as against £50 in 1931. All the samples provided were, in fact, disposed of on the day before the Fair closed, and almost unlimited quantities of Turkish delight could have been sold had they been available.

The utility of the Fair does not end with the actual business done during its continuance. For a considerable time thereafter, enquiries from all parts of the world are directly traceable to it : to give one example only, the entry relating to Cyprus in the official catalogue for 1931, was the cause of an enquiry many months later from China for oranges and cigarettes.



Cyprus Stand at the British Industries Fair, February, 1932.]

Cultural Notes on Potatoes.

By CHR. IERONYMOU.

THE importance of the potato industry to Cyprus is gradually being more deeply appreciated. Naturally, a product of so great importance, the cultivation of which is favoured by the soil as well as by the climatic conditions of the Island, moves a desire for improvement in its cultural methods and control of its natural enemies, and one of the chief endeavours of the Department of Agriculture has been the enlightenment of the agricultural community on the various problems relating to its cultivation.

THE world-wide importance of this crop becomes more evident from the fact that out of the total area appropriated, in the whole world, to potato and cereal cultivation, more than the one-fourth is given to potatoes.

Unfortunately, however, the increasing scale of cultivation of this crop in the Island, is not accompanied by a commensurate interest in its improvement and, consequently, there is great scope for increase of the present output by the application of better cultural methods.

The object of this article is to draw the attention of potato growers in Cyprus to some very important points in potato cultivation.

Potatoes are most successfully grown when a definite rotation is practised.

In order to secure a heavy crop the land must be thoroughly cultivated.

The soil for potato-growing must be rich in organic substances, which, besides keeping the soil in a light condition, provides a constant source of food to the plants. Soils poor in organic substances are greatly improved by growing a green manure. A good crop for this purpose being lucerne. Green manure, the use of which is very common in America as a preparatory crop for potato-fields, gives to the soil—besides the above advantage—the capacity to retain moisture and enables it to develop a greater bacteriological activity, especially of nitrogen-forming micro-organisms.

Where, however, green manure is not possible, animal manure is recommended at the rate of 2,500 okes per donum as well as one sack of suitable chemical fertilizer. A compound fertilizer rich in phosphorus should be used. It is preferable for the animal manure to be applied at the cultivation preceding the planting of the potatoes.

The selection of seed potatoes is of great importance. Moderate sized tubers result in a better yield and to a crop containing a bigger proportion of starch.

Whole tubers should be used as far as possible. If the tubers are to be sliced, it is desirable that the slicing take place a few days before planting. Newly-cut tubers are liable to undergo changes in the soil, and they always grow weak and less productive plants. The cut should preferably be lengthwise.

The following experiments made in 1916 at Ernshofen by Professor Wagner demonstrate the advantage of planting seed-size whole tubers.

<i>Description of tubers.</i>	<i>Average weight of each tuber seed.</i>	<i>Quantity sown per donum</i>	<i>Yield per donum.</i>
	<i>Drams</i>	<i>Okes</i>	<i>Okes</i>
Whole ..	23 ..	260 ..	3,100
Whole ..	19 ..	210 ..	2,660
Whole ..	16 ..	166 ..	2,260
Sliced ..	19 ..	210 ..	1,960

The above experiment by Prof. Wagner proves (1) that slicing of the tubers is undesirable, and (2) that moderate sized tubers yield a bigger crop than small sized ones. The influence of the size on the yield is more manifest when the seed is healthy. Seed potatoes must be stored under favourable conditions and the following points carefully observed :—

(a) Tubers should be protected from light until the time of the commencement of germination.

(b) When germination is desired, the tubers should be permitted more light. This causes a delay in the growth of the buds and contributes to their remaining short, thick, robust, and consequently more productive.

(c) Tubers should be kept in store at low temperature. When kept at a low temperature in stores or heaps they are less liable to degeneration.

(d) Afford the tubers good ventilation.

The value of potatoes, no matter for what use they are destined, is dependent to a great extent on the conditions under which they are kept after harvest. The digging should be done under good weather conditions, and on being taken out of the soil the potatoes left for a few hours on the ground, to dry, to have their skin hardened, and the wounds, due to their removal from the mother-plant, healed. The drying process must not be prolonged more than necessary, otherwise their taste and their sprouting capacity will be affected.

At the time of gathering, the tubers must be graded according to size, and the seed potatoes selected and separated from damaged or diseased tubers.

If it is desired to keep the potatoes for a long time, they can be kept in stores, provided that the floor of the store is dry, the store has a steady temperature and is well ventilated.

Cold, heat, light, moisture and lack of ventilation are dangerous to stored potatoes. Very low temperature causes a change of the starch and sugar content and when the sugar content reaches 1%, it makes the tubers distasteful. A temperature 8°C causes fermentation, humid temperature or strong light favours sprouting, defective ventilation facilitates fermentation.

The layer of tubers must not be thick and should not touch the walls, the store should be inspected and the tubers examined, all shoots should be removed and any unsound potatoes or those showing any signs of change should be taken away.

Late Blight of Potatoes.

THE Late Blight of potatoes, caused by the fungus *Phytophthora infestans* is one of the most serious diseases to which the potato is subject. The disease was first noticed in Europe in 1840 and by 1845 it had become generally established. In 1846, the Irish potato crop, on which the inhabitants were then largely dependent, was almost completely destroyed by the disease with consequent widespread famine. Since then, the disease has occurred regularly in the British Isles, varying in its intensity according to weather conditions. During wet seasons its effects are frequently disastrous but in dry seasons less serious. The disease was first noticed in Cyprus in 1931 when a small outbreak occurred in the Famagusta District. Immediate precautions were taken to restrict the disease to this locality with the result that the Autumn crop appeared to be quite free from attack, the weather conditions then being much more unfavourable to the fungus. Having once appeared, it is possible that the disease may break out at any time should favourable climatic conditions prevail, and it is hoped that the following description will enable growers quickly to recognize it and take timely precautions to prevent the disease from becoming established on the Island.

DESCRIPTION OF THE DISEASE.

The first sign of the disease, visible to the naked eye is the appearance of dark brown or blackish spots of irregular size and shape on the leaves. These dead areas appear at the tips or margins of the leaflets and may spread downwards if weather conditions are favourable until the whole leaf is blackened and wilted. During exceptionally favourable conditions, such as wet, muggy weather, the whole plant is quickly reduced to a blackened mass,

On the under surfaces of the black spots especially at the margins between diseased and healthy tissue, can be seen a delicate white mould, which is a characteristic sign of the disease.

The fungus causing the disease consists of a number of minute threads in the leaf tissue. This internal portion of the fungus sends out minute branched threads from the breathing pores of the leaf. These branches bear large numbers of pear shaped spores, which on becoming detached are carried by wind and other agencies on to the foliage of healthy plants. Each spore on alighting on a healthy leaf or stalk can after germination penetrate the tissue and give rise to a discoloured patch on which will eventually be produced the white mould and a further crop of spores.

The period of time from the penetration to the production of a new crop of spores will depend on weather conditions and may be only a few hours.

INFECTION OF THE TUBERS.

If wet weather is experienced after the foliage and haulms have been attacked, the tubers themselves are soon affected. This is brought about by the spores being washed down through the soil. In early stages of the disease on the tubers, the flesh becomes discoloured with rusty brown patches just visible through the skin. The disease may spread until the whole tuber becomes affected. Other organisms follow the Blight fungus which quickly bring about the rot of the tuber. Slightly affected tubers readily pass unnoticed and may bring about a rot in the store.

SOURCE OF INFECTION.

There is little doubt that the appearance of Blight in Cyprus is due to the use of infected seed. The re-appearance of the disease year after year in other countries is mainly due to the fact that certain slightly infected tubers are overlooked and become planted as seed. Such tubers may give rise to an infected shoot, which on appearing above ground produces a crop of spores and thus provides a source for a fresh outbreak.

CONTROL MEASURES.

Direct control measures consist of covering the foliage with a poisonous deposit which will prevent the spores from germinating. The two most suitable fungicides for this purpose are Bordeaux and Burgundy Mixtures. It is important that spraying should be done in good time and growers whose crops have suffered during the previous year should spray early before the disease appears. The first spraying should be given when the plants are from 6 to 8 inches high ; a further spraying should be given when more new

foliage is produced. If wet muggy conditions prevail, the crop should be sprayed at frequent intervals. To spray one donum the first time about 140 okes of spray fluid would be required, for the second spraying about 190 okes would be sufficient. In spraying, both sides of the leaf should as far as possible be covered.

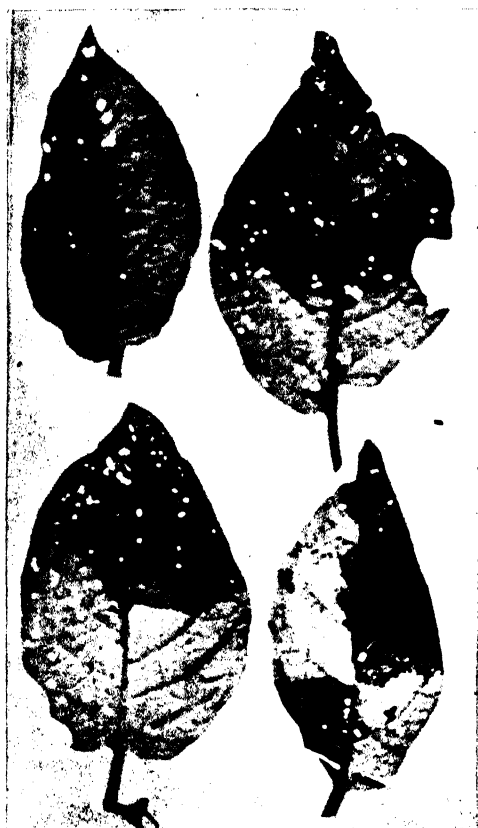


Fig. 1.—Late Blight on Potato Leaflets.
(After Chupp.)

INDIRECT MEASURES OF CONTROL.

Since the epidemic is started each year from the planting of diseased seed tubers, the utmost care should be taken to see that none but healthy sets are planted. Slightly infected tubers are difficult to distinguish, but if they are boxed and sprouted they may often be detected by the fact that they may produce a weak spindly shoot or may not sprout at all. Such sets should on no account be planted. Since tubers become infected through spores being washed down through the soil, a thorough earthing up will minimize the risk of infection.

Any grower who suspects that his crop has become infected should immediately notify the District Agricultural Officer who will advise him how to deal with the outbreak.

It is possible that the Late Blight may be confused with a far less serious disease known as the Early Blight caused by the fungus *Alternaria solani*. The two diseases can readily be distinguished on close examination. The leaf spots caused by the Late Blight are of large size with a smooth outline and grow inwards from the tip or margin of the leaf. The white mould is not caused by any other disease of the potato.



Fig. 2.—Early Blight on Potato Leaf.
(After Chupp.)

The spots caused by the Early Blight are much smaller than those of the Late Blight. They are dark brown, circular or angular in outline and may occur anywhere on the leaf surface. A characteristic feature of these spots is a number of concentric ridges or lines running parallel to the outline of the spots. The older leaves are usually the ones to be attacked. The disease may cause a certain amount of curling of the leaves but it never produces a wet rot or causes the plant to collapse as does the Late Blight. Control measures consist of spraying with Bordeaux or Burgundy Mixture as for Late Blight.

Notes on Feeding Poultry.

By G. BARRETT, *Manager, Stock Farm.*

SUCCESS with poultry keeping depends to a great extent on proper management and strict adherence to a daily routine in which the method of feeding is of greatest importance.

A fixed scale of feeding cannot be recommended as various circumstances will determine the method to be followed. The more important of these circumstances are whether the birds are kept enclosed, semi-enclosed or allowed liberty. A different ration to that given to hens for egg production will be given to young chickens, pullets or cockerels. The local circumstances under which the poultry are kept and the types of poultry food available will also determine what the ration will actually consist of.

Poultry feeds, apart from the natural food secured by birds at liberty or mixtures of house or farm scraps, consist of a grain ration and a mash. The mash may be fed either as a dry mash or a wet mash. A dry mash merely consists of a mixture of meals fed in the dry state while a wet mash consists of the meals mixed with water or milk. A wet mash is greatly improved by mixing with skimmed milk instead of water. Great care should be taken to ensure that the mash is not too wet or too dry.

The results as far as health and production are concerned from either the "dry" or "wet mash" system are practically the same. The former is more economical from the labour point of view especially in cases where large numbers of poultry are kept but for the poultry keeper with small numbers of birds the wet mash system is best as the house scraps can be utilized in the mash.

The mash should always be fed in troughs and sufficient trough accommodation provided for the number of birds being fed. The troughs should always be kept in a clean and sanitary condition.

The grain ration should be scattered amongst the litter when the birds are enclosed as this makes the birds search for it, thus giving them exercise which helps to keep them in good condition.

It is important that a liberal supply of green food should be provided. For this purpose chopped up onions mixed with the mash is very good also green lucerne finely chopped up and fed separately. Other green foods are lettuce leaves finely chopped grass and artichokes.

A constant supply of clean fresh water is essential. The water should be kept in the shade and in as cool a place as possible during the Summer months.

The birds should never be allowed to drink water contaminated in any way as by this means disease is rapidly spread.

It is recommended that permanganate of potash be added to one pint of water sufficient to make the water a light pink colour together with two teaspoonful of Epsom salts and be given once a month. The above quantity is sufficient for twelve Birds.

Grit or Oyster shells which are readily available in Cyprus should always be plentifully supplied especially when the birds are enclosed. Grit is necessary for grinding the food in the gizzard.

No food is required by newly-hatched chickens until they are at least from 30 to 40 hours old.

The following rations are suggested as suitable for feeding poultry in Cyprus. For young chickens it is suggested for the first month four meals a day should be given consisting of mash and dry feed.

A suitable mash is :—

5 lb. sifted barley meal ;

5 lb. sifted oat meal ;

0½ lb. bone meal.

Dry food should consist of one part sesame and one part crushed wheat scattered amongst the litter. Grit is essential from the end of the first 48 hours and throughout the whole period of rearing. For the second month the same mash may be given, and if there is a scarcity of green food, finely ground lucerne meal should be added in the proportion of one part to ten.

In the later stages of rearing and during the third and fourth months three meals per day are sufficient and a suitable mash at this period is :—

6 lb. barley meal ;

2 lb. wheat meal ;

6 lb. oat meal ;

1 lb. lucerne meal.

No attempt should be made to limit the quantity of food given ; the birds should be allowed to satisfy their appetites.

For egg production a bird requires on an average four ounces of food daily, which should be in the proportion of 2 oz. as mash and 2 oz. as grain. This is over and above any natural food the birds may eat.

A suitable ration for laying hens and of which all the materials are obtainable locally is :—

15 lb. barley meal ;

5 lb. oat meal ;

5 lb. bran ;

3 lb. lucerne meal ;

0¼ lb. salt.

The above mash mixed with skimmed milk should be fed in the morning at the rate of 1½ oz. per bird per day. The salt is dissolved in the milk before mixing the mash.

At noon, whole wheat is fed scattered in the litter at the rate of 1 oz. per bird and in the evening wheat is fed in the trough allowing as much as they will eat. One part of maize, if available, to one part of wheat should be used during cold weather. In addition the birds should be supplied with grit and green food.

A large variety of foods can be used for poultry and no hard and fast rule can be laid down. Poultry keepers are advised to regulate the rations fed according to their own experience, suitable foods available and their price if they have to be purchased while bearing in mind the fundamental principles of poultry breeding.

Rotation of Crops.

BY A. KLOKKARIS, *Assistant Inspector of Agriculture.*

THE principle of growing different varieties of crops on the same piece of land in succession according to a definite system is known as rotation of crops. Different systems are practised in different countries and different rotations are applicable to different parts of the same country. No fixed rules can be recommended or need be strictly adhered to, as the soil, climate and market requirements should be considered. The main aim of rotation is to grow in succession different kinds of crops alternating with leguminous crops and not growing the same crop twice on the same field.

In Cyprus, apart from fallowing, little effort is made to grow crops on rotation on a scientific basis.

A rotation is necessary if the farmer does not wish to impoverish his soil and thus gradually diminish the yields of his crops.

Each variety of crop requires some substance of fertility more than another crop, therefore, if the same crop is grown in succession year after year, the soil becomes exhausted of the particular plant food required by that crop.

When rotation is practised in a systematic manner, the demand upon the store of plant food in the soil is equalized without detriment to the fertility of the soil.

Shallow rooted crops such as barley, exhaust the surface layers of the soil, while deep rooted crops such as cotton and maize feed on the lower layers of the soil. Leguminous crops such as beans have a beneficial effect on the soil through the action of the bacteria in the root nodules. Potatoes give an opportunity of cleaning the land free from weeds.

By growing crops in rotation insect pests and fungus diseases are brought more under control.

In the cereal-growing areas of the Island, and where Summer crops are grown under irrigation, a system of rotation should be practised. It is often observed in these areas that no effort is made to follow any proper system of good husbandry, as deep rooted and shallow rooted crops, or cleaning and leguminous crops, are grown following each other not necessarily when marketing or any other circumstances or consideration has demanded it.

One of the reasons for the uneconomic returns in cereal production in Cyprus is due, to a great extent, through farmers ignoring the value of rotation.

Publications Reviewed.

"The Veterinary Bulletin."

THE Veterinary Bulletin is published monthly by the Imperial Bureau of Animal Health, situated at the Veterinary Laboratory, Ministry of Agriculture and Fisheries, Weybridge, Surrey, England. The Director of this Bureau is W. Horner Andrews, D.Sc., M.R.C.V.S., and the Deputy Director is W. A. Pool, M.R.C.V.S.

The Veterinary Bulletin runs to about 864 pages, including the index for each monthly issue, and the final author index and the classified subject index to the volume. It is an abstracting journal dealing with current literature and includes references to all important British and Foreign work relating to Veterinary Research, Administration, Public Health, and Education.

It is an admirably arranged publication.

The subjects are classified under the following headings :—

1. Diseases caused by Bacteria and Fungi.
2. Diseases caused by Protozoan Parasites.
3. Diseases caused by Filtrable Viruses.
4. Diseases, General.
5. Diseases related to Nutritional and Metabolic Factors.
6. Diseases related to Genetical Factors.
7. Diseases caused by Metazoan Parasites.
8. Invertebrate Vectors of Disease.
9. Immunity.
10. Public Health.
11. Physiology.
12. Poisons and Poisoning.
13. Therapeutics.
14. Zootechny.
15. Technique.
16. Miscellaneous.
17. Official and Other Reports.
18. Book Reviews.

The subscription is £2 for the volume, or 5s. per copy, payable in advance, post free to any part of the world.

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"Nutrition, Abstracts and Reviews."

This publication is issued quarterly under the direction of the Imperial Agricultural Bureaux Council, the Medical Research Council, and the Reid Library. It is published by the Imperial Bureau of Animal Nutrition, the Reid Library, Rowett Institute, Aberdeen.

As the name implies this is an abstracting journal, and it fully covers current scientific literature on all aspects of animal nutrition. The publication runs to 612 pages and the annual subscription is 21s. net.

The ground covered is included under the following headings :—

1. Technique.
2. Composition of Food-stuffs.
3. Physiology of Nutrition.
4. Dietetics.
5. Feeding of Animals.
6. Diet in Relation to Health and Disease.
7. Book Reviews.

The publication is concluded with an author index.

* * * * *

“Bibliography of Helminthology for the year 1930.”

Compiled by A. Walton and issued in March, 1932, by the Imperial Bureau of Agricultural Parasitology. This publication contains a list of 346 scientific journals arranged in alphabetical order. Under each journal heading is given a list of authors and the articles compiled by them.

This is followed by an index of Authors, and an Addenda containing a list of text books of Helminthology, Monographs, Dissertations and Theses published during the year, and Reports of Expeditions.

* * * * *

“Helminthological Abstracts.”

This is published as a supplement to the Journal of Helminthology and is issued by arrangement with the Imperial Bureau of Agricultural Parasitology. It is a resumé of current periodical literature dealing with Helminthology.

Differs from most abstracting Journals in that the text is arranged as an alphabetical list of current periodicals.

The introduction is preceded by an alphabetical list of authors but there is no list of contents.

* * * * *

“Imperial Bureau of Animal Genetics Quarterly Bulletin.”

The issue of April, 1932, contains a long review of a book by John Hammond entitled “Growth and the Development of Mutton Qualities in the Sheep.”

A few notes are submitted by workers who have been guests of the Institute of Animal Genetics, and abstracts are given of the relevant papers read at the International Dairy Congress 1931, Copenhagen.

Note.—The publications referred to may be consulted, or in certain cases obtained on loan, at the office of the Chief Veterinary Officer, Nicosia, who is Official Correspondent for Cyprus to the Imperial Agricultural Bureaux of Animal Health, Animal Nutrition, Animal Genetics and Agricultural Parasitology.

EDITORIAL AND ADVERTISEMENT NOTICES.

All communications for publication should be addressed to the Editor *Cyprus Agricultural Journal*, Department of Agriculture, Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts can not be returned unless postage is prepaid.

Copies of the *Cyprus Agricultural Journal* can be obtained on application to the Department of Agriculture, price 3cp. per number, or by post 4cp.

Annual subscription payable in advance 16cp. post free. Overseas subscription 18cp. (2/-).

SCALE OF ADVERTISEMENT CHARGES.

A uniform reduced rate is charged for all advertisements which covers their insertion in the English, Greek and Turkish issues respectively.

As special efforts are being made to increase the circulation of the Journal in the Colony and Overseas it may be regarded as a valuable medium for advertising.

The following are the rates in force :—

COVER—Full page, 1 year or 4 insertions	...	£2 15 0
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These charges include insertion in the English, Greek and Turkish issues.

Advertisements should be written on one side of the paper only, and should reach the Editor, *Cyprus Agricultural Journal*, not later than the 10th of the month of issue.

The "*Cyprus Agricultural Journal*" is published in March, June, September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

DISTRICT NOTES.

ABSTRACTS FROM THE REPORTS OF THE COMMISSIONERS, NICOSIA, FAMAGUSTA, LIMASSOL, PAPHOS, LARNACA AND KYRENIA FOR THE QUARTER ENDED 31ST MARCH, 1932.

Nicosia District.

Live Stock.—The effect of the drought is reflected in the figures of the sheep and goat counting, which are as follows. The counting was made during March.

		1932		1931		1930
		—		—		—
Sheep	..	72,869	..	79,639	..	73,290
Goats	..	60,861	..	68,099	..	64,784

But the greatest harm was done to the lambs and kids, not included in the above figures, among whom the mortality was very great indeed. Many of the surviving animals are decrepit and subject to disease, and it is feared that the breeding prospects for 1933 are seriously affected and that it will be some years before the position is restored. The temporary permission to graze in the Government forests has been much appreciated and undoubtedly did something towards relieving the animals. A remarkable shortage of straw is beginning to be felt and the provision of forage for stabled animals is becoming difficult. The use of crushed carobs for that purpose is not generally adopted.

The shortage of rainfall during the past Winter has gravely affected the condition of the cereal crops, and a poor yield, both in quality and quantity is expected. The barley is almost a total failure throughout the district, and the yield of wheat will be poor. A small area was sown on account of the delay in the rainfall.

Potatoes.—These promise a good crop.

Fruit Trees.—A good yield is expected if unfavourable climatic conditions do not intervene.

Broad Beans.—The frost has somewhat arrested development and a diminished yield is expected. The area sown is about the same as last year.

Summer Crops.—If rain falls during the next two months there is a prospect of good crops generally.

Famagusta District.

The following is a comparative statement of the number of sheep and goats in the Famagusta District for 1931 and 1932 :—

		1931		1932
		—		—
Sheep	..	96,409	..	100,873
Goats	..	41,877	..	39,462

These figures are of interest in so far that they appear to demonstrate the fact that the goats were the principal sufferers from the prolonged drought and consequent absence of green fodder early in the year. That the sheep suffered too during the lambing season, there can be no question, but the mortality among the goats and kids must have reached, from all accounts, a much higher figure.

Potatoes.—The Summer crop has germinated and promises well.

It may be of interest to note that the period under review saw a trial shipment to England of potatoes grown in the district, a most encouraging report on the consignment being received from the broker concerned.

Cereals.—The quarter was marked by extraordinary fluctuations in the prospects as regards the harvest. At first it appeared that all cereals were doomed to complete failure. Then came the rain and pessimism was changed to optimism. By the end of the quarter it was possible to gauge with some measure of certainty what lies in store.—On the Karpas, the northern face of the mountains ; on Cape Greco ; at the eastern end and on the northern side of the Messaoria, the production of both wheat and barley should be quite fair. Elsewhere and more particularly westward of the Akanthou-Lefkoniko-Larnaca Road the future is distinctly black and the close of the period saw sheep being grazed on the sorry remains of the barley. Vetches on the whole promise well.

Flax.—Prospects are not particularly bright in connection with this product, a state of affairs which is the more unfortunate seeing that for the first time a scutching factory has been opened in the district (at Kouklia). Hitherto flax had been grown for the seed alone.

Citrus.—The prices realized for oranges ranged from 40s. to 25s. per thousand and taken on the whole, production was fairly up to the average in spite of the cold winds, frost and hail experienced early in the year.

Limassol District.

Rainfall during the quarter was deficient. Heavy rain fell for a few days towards the end of January and there were four days in February and five in March in which it rained in various parts of the district, for short periods. In the plains, except where facilities for irrigation exist, the barley crops have either failed or are scanty, and the expectations for wheat are little better. In the hills such cereals as are grown are fair. If more rain falls, prospects for oats, vetches and Summer crops are good.

The Winter has been mild and there was less snow than usual on the hills. A shortage of water in the Summer is anticipated.

Carobs.—The crop now maturing on the trees is backward. The drought, the rats and the fact that crops in the two preceding years were exceptionally good, all point to a poor crop. 40,416 cantars were exported during 1931. Prices have ranged from 10s. to 15s. per cantar during the quarter, as compared with 6s. per cantar in the corresponding quarter of 1931. The present stock in hand is estimated at 60,000 cantars or about 13,500 tons.

Raisins.—Prices ranged from $2\frac{1}{2}$ to $3\frac{1}{4}$ *cp.* per oke. In the first quarter of 1931 the price ranged from $3\frac{1}{2}$ to 5*cp.*

Wines.—435,898 gallons of wine were exported. Prices ranged from 28s. to 30s. per load of 36 gallons as compared with 15s. in the first quarter of 1931. The stock in hand is estimated at 644,200 gallons.

Stock.—The sheep and goat counting figures for 1932 and the two preceding years are as follows :—

		<i>Sheep</i>			<i>Goats</i>
		—			—
1930	..	24,285	..	39,945	
1931	..	25,320	..	41,050	
1932	..	24,191	..	41,187	

The mortality among lambs and kids, of which these figures do not take account, has been estimated at about 30%. The condition of the flocks is poor and they are prone to attacks from lice and ticks. Pasture is deficient and the special permits for grazing in the forests granted by the Government have been much appreciated.

Paphos District.

The lack of rain at the end of 1931 and at the beginning of this year had consequences on agriculture.

The position of the crops prior to 24th of March, 1932, was a disappointing one and the farmers began to be greatly afraid of a complete failure but fortunately the rains fallen between the 25th and 31st March, 1932, revived their hopes.

Harvest prospects are in my opinion unpromising. In certain villages there is a hope of prospect for wheat depending on further rain and cold weather. The barley prospect will be very poor both in straw and grain excepting very few villages on the hills where there is a great hope of certain prospects. The rainfall return in this district since 1st September, 1931, is as follows :—

September ..	Nil	January ..	1.88
October ..	0.15	February ..	3.01
November ..	0.5	March ..	2.12
December ..	0.12		

The position of arboriculture during the passed quarter is good, except of olives and carobs of which the production is anticipated to be moderate on account of the big drought and the strong winds which greatly damaged the bearing of fruits.

The land brought under cultivation for onions and potatoes is estimated to be as that of the year 1931, but on account of the insufficient rains the yield of irrigation water began from now diminishing and the prospect is not very hopeful.

Mulberry trees were issued gratis to silkworm breeders for the purpose of encouraging in the plantation as on account of the low price of cocoons during 1931, they were discouraged and not willing to spend money in the purchase and cultivation of mulberry trees.

Larnaca District.**Sheep and Goat Counting :—**

		<i>Sheep</i>		<i>Goats</i>
		—		—
1930	..	40,573	..	23,961
1931	..	42,140	..	22,585
1932	..	41,996	..	22,066

or a decrease of 144 sheep and 519 goats as compared with that of 1931.

This decrease is not so great as I expected in view of reports received from Mukhtars regarding fatalities among flocks due to the drought, although it is probable that deaths of kids and lambs have been more numerous. Exact figures will not be known until next year but in any event the state of the flocks is not so bad as was at one time anticipated.

Cereals.—Harvest prospects with regard to cereals are, in my opinion, decidedly unpromising. Rainfall returns for the six stations in the district since the 1st September, 1931, are as follows :—

PLAINS.				
Larnaca	..	..	..	10.36
Alethriko	..	..	..	7.03
Kofino	..	..	..	8.45
Kalavaso	..	..	..	6.58
HILLS.				
Lefkara	..	..	..	8.16
Ora	..	..	..	4.55

Almost half of the recorded rain fell in three days during the period 16th to 31st January.

It is considered that the barley crop will be short in straw and deficient in grain. In a few villages there is a fair prospect for wheat but much depends on favourable showers during April. In most villages the outlook is not good and in Aradippou, Athiænou, Melousha, Tremetousha, Arsos, Kellia and Troulous the harvest is bound to be poor and may be almost nil. Pulse crops, of which there are not a great quantity, appear to be promising.

The usual work was carried out at the Nursery Garden, the Moslem School Garden at Scala and the experimental fig plantation and garden at Livadhia. In the last village the people are being encouraged to dry figs properly and prepare them in cartons for local consumption and for export. The samples prepared by the Department compare very favourably with Smyrna figs sold in England. Sericulture has also been encouraged particularly through the girls' schools and I am informed that the quantity of silkworm eggs sold this year is well above the average.

Kyrenia District.

The lack of rain at the end of 1931 and at the beginning of this year has not had such serious consequences as was at first anticipated. The products of this district, at any rate on the North side of the hills, being usually later in maturing than in other parts of the Island. Although it has been observed that this district has been fortunate in regard to its rainfall when compared to other districts, it may be noted that shepherds in less fortunate areas have taken advantage of this and brought their flocks here. During the early part of the quarter, live stock was severely affected on account of the scarcity of natural fodder and early green barley.

Cereals.—There has been an increase in the area sown to barley, but, with the exception of a few isolated places, there will be a very definite shortage of the straw of this crop. The wheat harvest on the other hand, though likely to be late, promises to be up to the average, given a little more rain.

Beans.—This commodity was extensively sown and there is every prospect of good crop being obtained.

Potatoes.—The usual areas were planted, but it is early yet to predict whether the yield will be up to the average.

Tobacco.—As far as I can ascertain only 150 donums have been planted throughout the whole district—about a sixth of the area planted during the two previous years. The area is confined to ten villages and 35 planters.

Carobs.—Stocks are considerably reduced, large quantities having been exported to England. Prices have much improved.

Citrus.—The adverse weather conditions during the early part of February were responsible for a large quantity of lemons falling from the trees, and a temporary reduction in market prices. A considerable number of this fruit have been preserved in sand and sea-weed and are being sold at 15s. per thousand.

Cocoons.—The production of cocoons is likely to be much less than last season due to low prices offered in 1931, seed is cheaper which has made it possible for the less experienced to try their hand to sericulture.

Counting of Sheep and Goats.—The result of the counting of goats and sheep which was carried out by the Rural Constables was as follows :—

Sheep 18,923 ; Goats 23,744 against 16,993, and 23,819, respectively counted last year.

The Cyprus Agricultural Journal.

A QUARTERLY REVIEW

OF THE

AGRICULTURE, FORESTRY AND TRADE OF CYPRUS.

Vol. XXVII., Part 3. SEPTEMBER, 1932. Price 3cp.

EDITORIAL NOTES.

THE climatic conditions which have prevailed during August and early September are indicative of early autumn rains and normal climatic conditions during winter. Any fears of a continuation of the drought into another season have been allayed and a spirit of optimism created by the hopeful prophesies of the "knowing" weather prophets. It is only to be hoped that the forecasts will come up to expectation.

The full effects of drought on the cereal crops have now been determined, as well as the effect on all summer crops, carobs, olives, fruit and nut trees and vines. Government intervention in providing seed corn loans has been necessary and the situation as regards fodder supplies is being very carefully studied.

The seed corn loan scheme is being organized by the Department of Agriculture and already large stocks of seed wheat and barley have been purchased for issue on repayment to the villages which suffered a complete or serious failure of crop.

The condition of live-stock varies considerably in accordance with the availability of straw in different areas. Early rains will have a prompt beneficial effect on sheep and goats but no material improvement in the larger animals can be expected until December or January.

Summer crops generally suffered considerably on account of the diminishing supply of irrigation water.

The Viticulturist and Wine Expert, in a recent report on the prospects in the vine-growing areas, states :—

In spite of the damage caused by "sunburn" the crop appears to be good in general and an improvement on the previous estimate of 15% below normal average may be expected. The moist weather during the last fortnight of August has facilitated the maturing of the grapes and considerably improved the quality and the prospects on the whole are very satisfactory.

* * * *

The wine and table varieties of grapes in their third year at the Saitta Experimental Vineyard produced a fairly good crop this year. The progress made is very satisfactory and by next vintage it will be possible to fully demonstrate to vine growers the work being carried out at this Station.

* * * *

Similar progress has been made at the deciduous fruits nursery at Trikoukkia, near Prodromos.

* * * *

Under Section 4 (1) of the Tobacco Law, 1932, which came into force on the 1st July, 1932, every person desiring to plant or cultivate tobacco must apply to the Director of Agriculture for a licence to cultivate. No licence will be granted unless the total area to be planted is not less than 2 donums and the land on which it is proposed to plant is suitable for the cultivation of tobacco.

* * * *

The Government have now under consideration a Bill to provide for the grading, proper packing and examination of agricultural produce intended for export.

* * * *

The problem of finding a remunerative market for pomegranates has again to be faced this year as there appears to be little hope of finding a remunerative market in Egypt. The fumigation restrictions and high tariffs still make the Egyptian market prohibitive.

The only possibilities for an outlet appears to be the United Kingdom or the Continent. One Covent Garden firm has offered to take consignments and another United Kingdom firm of Fruit Brokers is prepared to handle experimental consignments.

* * * *

The Twelfth Annual Imperial Fruit Show takes place at Birmingham during the period 21st October to 29th October, 1932. The Trade Commissioner for Cyprus in London is arranging to make a special display of lemons and pomegranates. In addition, raisins, almonds, hazelnuts, carobs, dried fruit and honey from Cyprus will form a feature of the exhibits being arranged at this Show by the Trade Commissioner.

The four portable power threshing machines, together with tractors purchased under the Agricultural Machinery Development Scheme, are now in the Island. Owing to the lateness of arrival of these machines and the poor harvest owing to the drought, it was only possible to bring two of them into operation this year. Sets of tractor implements for each tractor have been ordered, and during the winter season it is proposed to demonstrate and give facilities to farmers in tractor ploughing.

* * * *

The Prospectus and Register of the Imperial College of Tropical Agriculture, Trinidad, for the year 1932, has recently been received by the Director of Agriculture. Anyone desiring further information in regard to the Diploma courses, Post graduate courses or Refresher courses of this College should apply to the Director of Agriculture, Cyprus, or direct to the Registrar, The Imperial College of Tropical Agriculture, Trinidad, or to the Secretary, 14, Trinity Square, London, E.C.3.

* * * *

Information has recently been received regarding a new seed drill. The new drill is called the "Hornsby Leake 'Precision Drill'" and full particulars of this drill may be had from Messrs. Ransomes, Sims & Jefferies of Ipswich, England.

The following abstract from a note in "The West India Committee Circular" dated 4th August, 1932, is quoted:—

"Dr. H. Martin Leake, late Principal of the Imperial College of Tropical Agriculture, was among the exhibitors at the recent Royal Agricultural Show.

A new drill designed by him attracted much notice. It aims at giving effect to the work of Professor Engledow of Cambridge University which has shown that increased regularity in the seeding of cereals should result in considerable increases of yield. That the new "Hornsby Leake 'Precision Drill'" as it is called, actually gives such increased regularity has been proved by comparative films of the seed delivered at the coulter head, and practical comparative field trials on the University Farm at Cambridge have demonstrated that a very appreciable increase of yield results.

By a very simple vibratory movement the seed is maintained in a fluid condition which permits it to be poured. A rotating cone, vibrating vertically, carries the seed to the discharge aperture, while a stepped baffle, so mounted that this aperture can be adjusted for all ranges of seed from the largest to the smallest, controls the rate of seeding. It is thus capable of sowing a range of seed from clover to field beans, and a single adjustment controls both the rate of seeding of any particular seed and the different seeds."

Report on the Participation of Cyprus in the Levant Fair, 1932, at Tel-Aviv, Palestine.

(7TH APRIL TO 9TH MAY, 1932.)

*By Mr. P. M. Symeonides, Inspector of Agriculture,
Exhibition Commissioner.*

ON the 30th January, 1932, the Government finally decided to participate in the Levant Fair and arrangements were made to rent a Pavilion by the Secretary of the Trade Development Board with Mr. A. Idelson, one of the Directors of the Fair, who specially visited Cyprus. As the amount sanctioned by Government was insufficient for participation to the full extent desired, an appeal was made to merchants and private individuals requesting them to assist by providing exhibits and contributing towards the cost of participation. There was a ready response to the appeal for exhibits and funds and a sum of £106 5s. was collected from private sources. The names of private subscribers and the amount subscribed by each are given in appendix A to this report. The exhibits were forwarded to Palestine by the Lloyd Triestino steamer "Adria" on the 20th March, 1932, and arrived at Jaffa the following day under my personal supervision.

The Fair was opened officially on the 7th April, 1932, by His Excellency the High Commissioner of Palestine. His Excellency made an official inspection of the Fair during which the Cyprus Pavilion was visited.

The duration of the Fair was originally intended to be from the 7th to the 30th April, but the period was ultimately extended to the 9th of May. There were many inquiries for various products of Cyprus and sales at the Pavilion realized £350. The goods sold were mainly cotton and silk fabrics, embroidery and baskets. Samples of the various exhibits were freely distributed.

Mr. G. M. Pietroni, Secretary of the Trade Development Board, was in attendance at the Fair for a short period to interview merchants and other enquirers interested in Cyprus and its products.

THE CYPRUS PAVILION.

General.

The Pavilion was somewhat small for the quantity and variety of the exhibits sent and this made the effort of displaying all the exhibits to the best advantage rather difficult. The Pavilion which was 75 square meters in area was situated in a central position in the Fair. The experience gained last year at the

6th International Fair of Salonica was of great value in arranging the Pavilion. The show cases and stands were made in Cyprus and forwarded along with the exhibits to Tel-Aviv, which, besides being economical, allowed time for the Pavilion to be prepared in every detail for the opening day.

On the wall space were old maps of Cyprus kindly loaned to the Agricultural Department by Mr. L. Z. Pierides of Larnaca and special maps of Cyprus provided by the Land Registration and Survey Department. There was also a display of over 100 photographs showing places of ancient and historical interest in the Island as well as views of hotels and holiday resorts and places of general interest. The decorations were made complete by a display of Cyprus-made curtains, embroidery and laces. The show cases were placed in the middle of the Pavilion, while the stands were placed against the walls, leaving a circular passage for the movement of visitors in the Pavilion.

GENERAL DESCRIPTION OF EXHIBITS.

The exhibits, which were representative of most of the agricultural and industrial products of the Island, consisted of the following :—

Silk and silk cocoons ; wheat, barley and oats ; broad beans, haricots, vetches, lentils, louvana, chick pea, green peas, favetta and cow peas ; flax, hemp, linseed, cotton, cotton seed, cumin, aniseed, coriander, sunflower and pyrethrum ; potatoes, onions and onion sets ; maize, sudan grass and broom corn ; oranges, almonds, hazelnuts, figs, raisins, sultanas, carobs and olives ; olive, sesame, cotton and linseed oil ; carob syrup ; linseed and cotton cakes ; ground sumac ; floor cement tiles, roofing tiles, bricks, pottery, straw baskets, wooden articles and brooms, etc. ; cotton, flax, woollen and silk fabrics ; embroidery, laces, cotton and flax yarn, twines and ropes ; tobacco, including yellow leaf, and fumigated ; cigarettes ; leathers, furs, flax, woollen and cotton rugs ; macaroni ; minerals, including pyrites, chromium, magnesium, asbestos, terra umbra and natural marble ; wines and spirits, including white and red wine, commandaria old and new, brandy, ouzo, mastic, and liqueurs ; silver work ; irrigation pumps ; Turkish delight ; otto of rose, lavender oil, origanum oil, lemon oil, and peppermint oil ; eau de cologne and face cream ; maps : including old and modern Cyprus maps, also relief map of Cyprus ; Cyprus stamps, including Jubilee stamps ; Cyprus currency ; salt and sponges.

CEREALS.

This section created considerable interest and many inquiries were made for seed of the following varieties :—

Tripolitiko, Kambouriko and Psathas wheats and Paphos' barley.



Interior view of the Pavilion showing Terra Umbra, Gypsum and Minerals.

POTATOES.

Cyprus potatoes are already well known to the public of Palestine as there is a regular established export trade with Palestine. The future of this market is not altogether secure as there is a tendency to increase the cultivation of potatoes in Palestine. Some importers complained about the grading and condition of consignments on their arrival in Palestine.

COTTON AND COTTON YARN.

There is a demand for small quantities of cotton required for upholstering, mattresses, etc. A few inquiries were received in regard to cotton yarn, but again the demand is very limited, especially due to the unevenness of the yarn.

SILK.

There is a limited demand for silk fabrics, particularly handkerchiefs. Cyprus silk fabrics could find a sale in Palestine with good propaganda.

HEMP AND FLAX.

A few enquiries were made, but prices were considered high. Efforts were made for the introduction of coarse tow for filling mattresses and upholstering furniture, but the question requires further exploration. Palestine is now increasing the cultivation of flax with a view to becoming self-supporting, and upholsterers are at present giving preference to other cheaper materials.

WOOL.

Enquiries were very limited.

CAROBS.

Several enquiries were received for whole and kibbled carobs both for feeding animals and for distillation. A certain amount of interest was also taken in carobs as a food for use on certain Jewish religious festivals.

SUMAC.

Practically no interest was shown in regard to this product.

WINES AND SPIRITS.

The old commandaria was very favourably commented upon. There are good prospects for establishing Cyprus wines on the Palestine market. The import duties are similar to those paid for wines imported from Italy, France and elsewhere. The above remarks also apply to brandy for which it should be possible to find a ready market amongst certain classes of the population.

MINERALS.

The interesting collection exhibited by the Inspector of Mines aroused a great deal of attention. Terra umbra was of special interest to Palestine importers of paints, etc.

BUILDING MATERIALS.

Gypsum and building stone as well as roofing tiles and bricks were of special interest to importers of building materials. Floor tiles were also the object of several enquiries.

COTTON, LINEN AND SILK FABRICS.

Laces and Embroideries

This section occupied four special show cases and stands with exhibits of cotton, linen and silk material as well as bed spreads, table covers, curtains, handkerchiefs, laces and embroideries.

Mr. C. Christodoulou of Nicosia and G. Loukaides of Larnaca exhibited privately and members of their staff were in attendance.

TURKISH DELIGHT.

Turkish delight, particularly that of Lefkara, was highly commended. There was a good demand for samples by visitors.

DEEP WELL PUMP.

Messrs. Kassianides Brothers of Nicosia exhibited their deep-well pump which evoked a great deal of interest.

“ CERATON ” FACE CREAM.

This cream, which is a preparation from carob seed, was exhibited by Tragasol Products, Ltd. of Limassol. Enquirers were referred direct to the manufacturers.

SPONGES.

The sample of sponges exhibited were considered to be of very good quality and a fair number of enquiries for sponges were made.

STRAW BASKETS.

Straw baskets made one of the most attractive exhibits in the Pavilion and many enquiries were made in regard to the supply of these articles.

RAISINS, SULTANAS AND DRIED FIGS.

Raisins, and particularly sultanas, were considered to be of excellent quality. Similar remarks apply to dried figs which, if properly packed and advertised, might find a ready market in Palestine.

CIGARETTES.

The Cyprus cigarettes exhibited by Messrs. Dianellos and Son of Larnaca were greatly appreciated and many enquiries were made as to whether these cigarettes were obtainable in tobacconists' shops in Palestine.



Interior of the Pavilion showing special exhibits of Mr. C. Christodoulou of Nicosia and G. Loukaides of Larnaca.

TOURISM.

One of the principal objects of the Cyprus Government in participating in the Levant Fair was to advertise the Island as a summer resort for visitors from Palestine and Iraq.

For this purpose, hotel proprietors of Cyprus were invited to send photographs and full particulars about their hotels.

A good response was made by the hotel-keepers and very attractive photographs were displayed. Descriptive literature was freely distributed to visitors. The result has been seen in a considerable increase this summer in the number of visitors from Palestine.

AWARDS.

A list of awards made by the Exhibition authorities to exhibitors in the Cyprus Pavilion is given in appendix C to this report.

In conclusion, I desire to express my sincere thanks to all those who contributed to the success of the participation of Cyprus at the Levant Fair, either directly or indirectly, also to Mr. K. W. Stead, O.B.E., the Director of Customs, Excise and Trade of Palestine, and his officers for the valuable assistance rendered to me, and to Mr. A. Idelson and other gentlemen responsible for the management of the Fair.

P. M. SYMEONIDES,

Exhibition Commissioner for Cyprus.

DEPARTMENT OF AGRICULTURE,

NICOSIA,

31st August, 1931.



Interior view of the Pavilion showing cereals.

APPENDIX A.**LIST OF SUBSCRIBERS AND AMOUNT SUBSCRIBED TOWARDS
COST OF PARTICIPATION.**

<i>Name</i>	<i>Address</i>	<i>Amount.</i>		
		£	s.	cp.
Cyprus Mines Corporation	Skouriotissa ..	10	0	0
M. C. Schiza	Limassol ..	10	0	0
W. H. Williamson	" ..	5	0	0
Costas Christodoulou	Nicosia ..	5	0	0
Cyprus Chrome Co., Ltd.	Troödos ..	5	0	0
Cyprus Wine and Spirits Co. ...	Limassol ..	5	0	0
J. Kokkalos	Prodromos ..	5	0	0
P. Ioannou and Co.	Famagusta ..	5	0	0
The Cyprus UMBER Industrial Co., Ltd.	Larnaca ..	5	0	0
B. Kassianides and Brother. . .	Nicosia ..	4	0	0
N. P. Lanitis and Co.	Limassol ..	3	0	0
J. Th. Peristiani	" ..	3	0	0
Cl. Constantinides	Trikomo ..	3	0	0
Christodoulou Bros.	Nicosia ..	3	0	0
G. L. Graham	" ..	3	0	0
G. Matsoukis	Paphos ..	2	2	0
H. Ll. Jones	Nicosia ..	2	2	0
H. Kirzis and Co.	Limassol ..	2	0	0
A. L. Mantovani	Larnaca ..	2	0	0
N. Kypriotis	Limassol ..	2	0	0
K. Katsellis	Kyrenia ..	2	0	0
Mukhtar of Lefkoniko	Lefkoniko ..	2	0	0
G. Marangos	Pedoulas ..	2	0	0
Ph. Pittarillis and Makariou ..	Nicosia ..	2	0	0
Z. D. Pierides	Larnaca ..	2	0	0
Ioakim Charalambous	Nicosia ..	1	10	0
M. Efthyvoulos	" ..	1	0	0
A. Skarparis	Asha ..	1	0	0
Church of Asha	" ..	1	0	0
Public Health Asha	" ..	1	0	0
K. Shemseddin	Paphos ..	1	0	0
E. Skyrianides	Limassol ..	1	0	0
Paul Kythreotis	Paphos ..	-	16	0
Mangoian Bros.	Nicosia ..	-	10	0
C. Allan	Kyrenia ..	-	10	0
Th. Ouranios	Nicosia ..	-	10	0
G. Economides	Famagusta ..	-	10	0
N. Englezos	Kalokhorion ..	-	10	0
	(Lefka) ..	-	10	0
N. Ch. Fessas	Lapithos ..	-	5	0
S. Papa Nicolaou	Stroumbi ..	-	5	0
Th. Antoniou	Nicosia ..	-	5	0
Phillip Bros.	" ..	-	5	0
Hji. Styllis Hji. Yangos	Lapithos ..	-	3	0
C. Themistocleous	Nicosia ..	-	2	0
Total ..		£106	5	0

APPENDIX B.**LIST OF AWARDS MADE TO CYPRUS EXHIBITORS.**

<i>Name</i>	<i>Address</i>	<i>Exhibits</i>	<i>Prize Awarded</i>
Government of Cyprus ..	Cyprus ..	For Cyprus exhibits and arrangement of the Cyprus Pavilion ..	Gold Medal
Agricultural Department ..	" ..	For general exhibits of Agricultural produce ..	Gold Medal
" ..	" ..	Essential oils ..	Silver Medal
" ..	" ..	Flax and hemp ..	Diploma
Costas Christodoulou ..	Nicosia ..	Cyprus laces ..	Gold Medal
George Loukaides ..	Larnaca ..	" ..	Gold Medal
Co-operative Society of Tobacco Growers, Yialousa ..	Yialousa ..	Yellow tobacco leaf ..	Silver Medal
Cyprus Wine and Spirits Co., Ltd. ..	Limassol ..	Wines ..	Silver Medal
John Peristiany ..	" ..	" ..	Silver Medal
Christodoulou Bros. ..	Nicosia ..	" ..	Silver Medal
Costas Christodoulou ..	" ..	Cotton, linen and silk fabrics	Silver Medal
C. Kyzas ..	" ..	Macaroni ..	Diploma
Perapedhi Wines and Spirits Association ..	Limassol ..	Wines ..	Diploma
D. Nicolaides ..	" ..	Mousse d'Or ..	Diploma
Yacoumis Charalambous ..	Nicosia ..	Wines ..	Diploma
Cyprus Umber Industrial Co., Ltd. ..	Larnaca ..	Terra umbra ..	Diploma
Costas Christodoulou ..	Nicosia ..	Embroidery ..	Diploma
George Loukaides ..	Larnaca ..	" ..	Diploma

Instruction in Sericulture.

DEMONSTRATIONAL WORK IN GIRLS' SCHOOLS DURING THE SCHOOL YEAR 1931-32.

WITH the assistance of the Department of Education and the support of the Board of Education demonstrational silkworm rearing was again carried out during the school year 1931-32, in Girls' Schools in various parts of the Island under the supervision of the Sericultural Inspectors and the Woman Sericulturist of the Department of Agriculture.



Ktima Girls' School.

The total number of Girls' Schools at which this demonstrational work was carried out was 223, of which 174 were Greek and 49 were Turkish Schools. 3,146 school girls attended the demonstrations and followed the various stages from the hatching of the silkworm eggs to the production of the cocoons.



Yeroskipos Girls' School.

The demonstrations were conducted on such model lines as could easily be adopted by the pupils in their villages.

The maximum production for the year under review was $67\frac{3}{4}$ okes per ounce of silkworm seed used and the general average for the 223 schools were $33\frac{1}{2}$ okes. This satisfactory production clearly demonstrates the importance and value of demonstrational silkworm rearing in Girls' Schools in helping to raise the general standard of production throughout the Island.

The two photographs published in this issue are of the pupils and Schoolmistresses with the cocoons produced by them at the Yeroskipos and Ktima Girls' Schools under the supervision of Mr. S. Pontikis, Sericultural Inspector, Paphos District.

Prizes were awarded as usual and the first prize was again won by Miss Mektie Ibrahim, Schoolmistress of the Turkish Girls' School of Ayios Andronikos.

Other Schoolmistresses of special mention on the prize list were :—

Emine Niyar, Galinoporni.

Zerife Mehmed, Larnaca.

Maria Vasiliou, Ayios Andronikos.

Erato Savvidou, Neokhorion (Paphos District).

Ioanna S. Kolokasidou

Antigoni G. Vovidou | Kalavaso.

Prizes were also awarded to twenty-nine other Schoolmistresses.

Participation of Cyprus in the Aldershot Show, 1932.

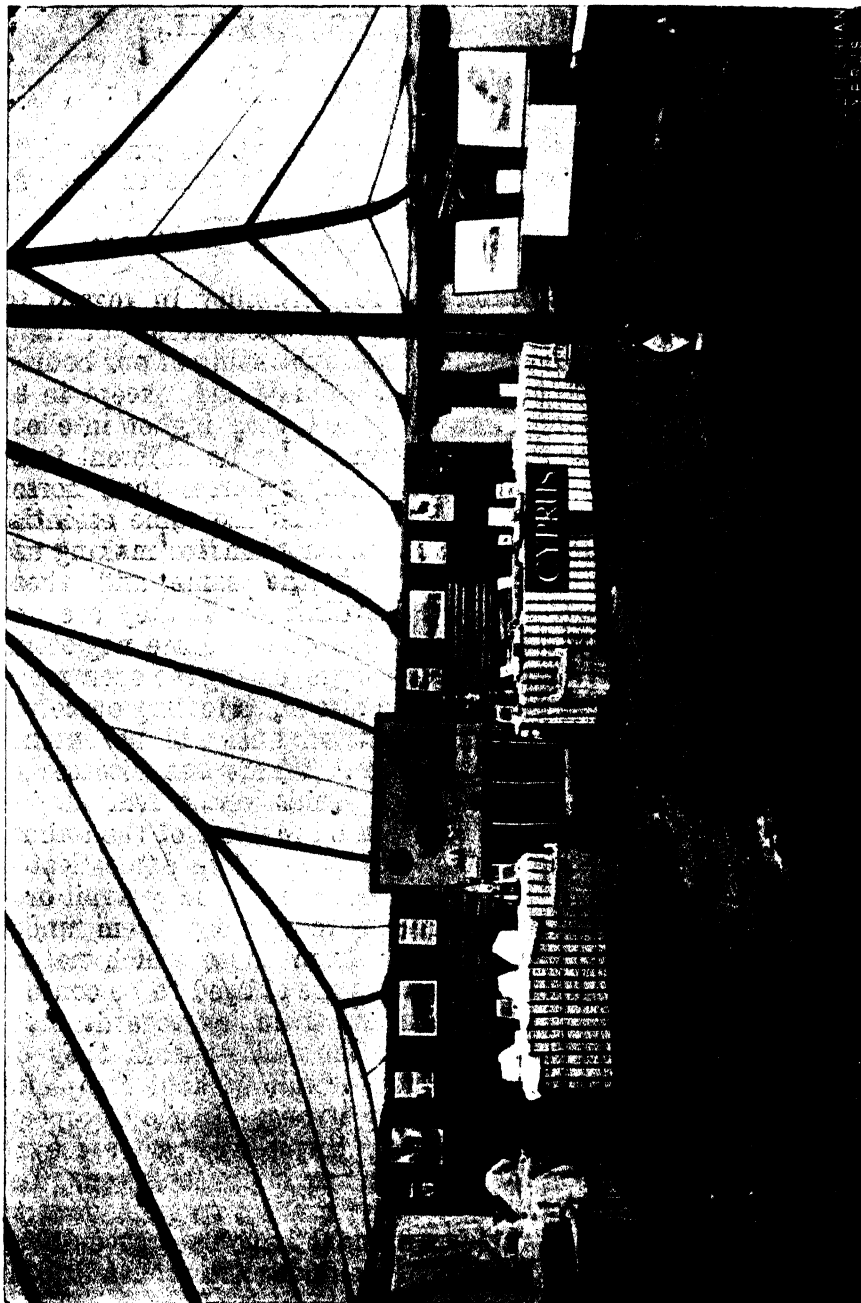
THE Trade Commissioner reports that the Aldershot Show, at which there has been for some years an Empire Section, opened on the 29th of June in the Rushmoor Arena. It was hoped that the participation of Cyprus would give opportunity to bring before the 25,000 visitors expected to attend it the claims of the Colony as a place of residence, and the display was arranged mainly with that object.

A coloured map of Cyprus was prepared showing the principal sea routes, roads, hotels, and places of archæological and other interest, and this was the central feature of the exhibit. A large quantity of descriptive literature, and small maps was available for distribution, and in addition there was a display of cigarettes, lace, and citrus fruit juice.

Part of the space allotted was given to Imperial Airways, Ltd., who made use of it to advertise the new air service to Cyprus, and arrangements were also made for this Company to occupy a larger space in another part of the section, provided prominence were given to the service. No charge was made by the organizers of the Show for space, lighting, water, and furniture.

Only two of the four days of the Show fell within the period of this Report. On the first, the attendance was good, but on the second, owing to bad weather, it fell off considerably.

A photograph of the Cyprus stand at Aldershot is published below.



Cyprus Stand. Aldershot Show—29th June to 2nd July, 1932.

Care of Animals in relation to Public Health.*

BY R. J. ROE, M.R.C.V.S., D.V.S.M.,

Chief Veterinary Officer.

THE object of this lecture is to put before you as briefly as possible some of those points in connection with the care of animals which are of importance in connection with the protection of ourselves and of our animals from infection by disease.

In order that our position and responsibility in regard to the care of animals may be quite clear, let me remind you that, physically and in the construction and functioning of our bodies, we are ourselves very similar to our animals and, except in so far as we believe ourselves to be gifted with higher intellect and with indestructible souls, we humans are no different from any other species of animals for example horses than horses are from cattle or from dogs. We require the same essential elements of food, water and air; our mechanisms for making use of those elements are more or less the same, and those mechanisms are subject to the same disorders if they are not allowed to function as nature intended or if we are neglectful in taking the necessary precautions for preventing the occurrence of disease. In so far as concerns the diseases affecting ourselves alone you have already been instructed and will be further instructed by my medical confrères. Where the diseases of animals are concerned, I would beg permission to remind you that, as we humans have been appointed masters of the animal world, all of those animals which are regarded as domesticated are submissive to our will, and in order that we may avail ourselves of their maximum utility we must keep them under conditions which are very different from those which nature intended for them. Thus, our animals are obliged to be content with whatever mode of life we allow them, as regards food, housing accommodation, harness, the amount of work they do and in other ways, and usually they submit without complaint to our ideas which are often foolishly wrong. In these respects the animals are incapable of helping themselves and are even more completely at our mercy than are infant children. Let us remember these points at all times and let us endeavour to carry out the great trust which we humans have been given both in keeping our animals as far as possible under *natural* conditions, in preventing the infliction of any avoidable pain (mental or

* Abstracts of a public lecture given under the auspices of the Cyprus Social Hygiene Council at Nicosia on the 26th August, 1932.

physical), and in protecting them from sickness and disease to the best of our ability. The neglect of this last-mentioned responsibility not only results in the spread of diseases in animals but also very frequently it permits the infection of ourselves with those same diseases (in the same form or in some other form) and we are then content to lay the whole blame on the animals concerned and to forget our own responsibility.

It would be quite impossible in the time at our disposal this evening to deal in detail with all of the diseases which can be communicated between domestic animals and man. Fortunately, some of the most serious of these diseases, for example Rabies, Tuberculosis of Cattle and Glanders, do not at present exist in Cyprus. Rabies, one of the most terrifying of all diseases, is usually contracted by man and other animals from the bite of a dog affected with Rabies. The disease is present in all the countries around us. Tuberculosis of cattle, in countries in which is present, is responsible for a large percentage of the cases of Tuberculosis in humans, especially in children. Glanders, a disease of horses, mules and donkeys can be transmitted to humans with fatal effects.

Although the diseases I have just mentioned are happily not existent in Cyprus, we have many other diseases which occur both in animals and in humans and I can only here refer to two or three of them, by way of example, to illustrate our responsibility in permitting them to exist.

In the case of Anthrax, which is also known in Cyprus as Phlangara, we have a disease which attacks man as well as all the other animals, horses, cattle, pigs, and especially sheep and goats. This disease causes the loss of animals in Cyprus to the annual value of £20,000 or more. In many areas each shepherd loses 10% or more of his animals from this cause and the loss to a village may be as much as £500 per year unless measures are taken to control the disease. Whereas this disease occurs in a very fatal and acute form in animals, it is usually of a less fatal form in men in whom it occurs most often in the form of a localized boil on the skin which can be cured with proper treatment. In animals death occurs so quickly that treatment is seldom practicable or successful, but we have at our disposal the knowledge and means to protect the animals against infection. The disease is caused by a bacillus microbe which is present in infected soil, food or water and which enters the animal through small wounds in the skin or in the mouth, stomach or intestines. Man can also be infected by inhaling the microbes into the lungs. We know that the blood of an animal which has died of this disease is usually swarming with these microbes. We also

know that if the carcase is buried, these bacilli are soon destroyed by the putrifaction of the carcase. If then we can ensure that the carcase of every animal which dies of Anthrax is properly buried, it is reasonable to expect that the spread of the disease can be controlled and the number of cases which would occur would be very rare. We also know that if the carcase is not buried, but is skinned or otherwise opened by dogs or other means so as to allow the bacilli to come in contact with air and sunlight, they form spores which can live under ordinary conditions in the soil and can remain infective to animals and man for several years.

Unfortunately, the burial of the carcases of animals, although required by Law, has never been a popular pastime with owners of animals in Cyprus, the skins and even the flesh are frequently removed and taken to the houses and are then sold, the infection being distributed at each point, the carcase is left to vultures and dogs which carry the infection over long distances and the barley or other crops grown on that place may be infective even after several years.

The vaccination of animals will protect them against the ordinary risks of infection for a period of about twelve months and this procedure has been applied on an increasing scale during recent years. The number of animals vaccinated in 1931 was over 400,000. This work, if accompanied by the careful burial of those dead animals which were not vaccinated or which were not sufficiently protected by the vaccine, will undoubtedly eradicate this disease after a few years.

That the burial of the carcases of animals is of essential importance is a fact which must be made known by every channel of education, for it not only concerns the control of this disease, Anthrax, but of most other diseases also.

Let me now pass to a consideration of the tape worm infection of man which is so common in Cyprus and which is contracted through the eating of pork. This tape worm lives in the intestines of men, it grows to a length of several feet, and from time to time small segments of it become detached and are passed out with the fæces. Each segment contains a large number of eggs. If the infected fæces are disposed of in such a way that they may be eaten by a pig or if they contaminate the ground on which the pig is feeding, the eggs of the tænia hatch out in the pig's stomach into small worms which pass into the body and form small cysts of the size of a pin-head up to the size of a pea in the muscles of the heart, tongue, hindquarters, or other parts of the body. These cysts remain until the pig is killed and then if the pork containing them is eaten without being very well cooked, the cysts reach the human stomach where the outer walls are digested and a small head is

set free from each one. This head (scolex) passes into the intestine, attaches itself and grows into an adult tapeworm which, in due course, again throws off infective segments.

Another common tapeworm of man has its cysts in cattle, and humans become infected from eating infected beef.

In each case you will observe that the fault lies not in the pig or in the ox but in ourselves for permitting the animals to become infective by failing to observe the elementary principles of hygiene which were advocated in the Law of Moses thousands of years ago.

The essential points in connection with the prevention of these tapeworm infections are therefore: firstly, the proper disposal of human excreta; secondly, the proper skilled inspection of all meat sold for human food (this is now satisfactorily carried out in the town of Nicosia); and thirdly, the efficient cooking of all beef and pork. Special care should be paid to the cooking of sausages.

Let us pass now to Hydatid disease, another parasitic infection occurring in man, cattle, sheep and pigs in which cysts varying in size from a pea to a man's head occur in the lungs, liver, spleen or other organ. These cysts are extremely common in animals in Cyprus and are also of very common occurrence in humans. They are caused by the swallowing of eggs of very small tapeworms which live in the intestines of dogs. The dogs become infected by eating the cysts in carcasses of animals or in pieces of affected meat thrown out by butchers. The dogs eat whatever food we give them and we cannot blame them if we or our animals become infected with Hydatids from eating food contaminated by them.

The eradication of this disease can be brought about by:—

1. Proper destruction of cysts found in slaughtered animals.
2. Burial of animals which die, so that dogs do not eat them.
3. Destruction of stray and ownerless dogs.
4. Giving an occasional dose of worm medicine to the dogs we own, and not letting them eat infected meat.
5. Careful washing of all foods which are eaten in the uncooked state, *e.g.*, fruits, salads, etc.

In these remarks, I hope you will understand that it is not my intention to make you frightened of eating beef or pork or of keeping dogs in your possession—I am myself very fond of both beef and pork and I keep six dogs whose companionship I value—but I have quoted these examples of diseases to illustrate the importance which the care of animals bears on the health of the community.

EDITORIAL AND ADVERTISEMENT NOTICES.

All communications for publication should be addressed to the Editor *Cyprus Agricultural Journal*, Department of Agriculture, Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts can not be returned unless postage is prepaid.

Copies of the *Cyprus Agricultural Journal* can be obtained on application to the Department of Agriculture, price 3cp. per number, or by post 4cp.

Annual subscription payable in advance 16cp. post free. Overseas subscription 18cp. (2/-).

SCALE OF ADVERTISEMENT CHARGES.

A uniform reduced rate is charged for all advertisements which covers their insertion in the English, Greek and Turkish issues respectively.

As special efforts are being made to increase the circulation of the Journal in the Colony and Overseas it may be regarded as a valuable medium for advertising.

The following are the rates in force :—

COVER—Full page, 1 year or 4 insertions	...	£2	15	0
INSIDE PAGES—Full page, 1 year or 4 insertions		2	8	0
„ Half page	„	1	4	0
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For one insertion only, one-fourth of above charges.

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For Wants, Articles for Sale or Exchange, Notices of Meetings, Events, etc., for the first 16 words, 2s. Exceeding 16 words but not exceeding 32 words, 4s. For every additional 8 words 6cp.

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Advertisements should be written on one side of the paper only, and should reach the Editor, *Cyprus Agricultural Journal*, not later than the 10th of the month of issue.

The “*Cyprus Agricultural Journal*” is published in March, June, September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

Control of Fungus Diseases.

INDIRECT MEASURES OF CONTROL.

IN a previous issue of the Journal (Vol. XXVII, March, 1932), the direct measures by which fungus diseases may be controlled were discussed. Such measures are necessarily expensive and are only applicable when the crop is a highly remunerative one. Much may be done by the farmer, however, to limit the extent of the damage caused by fungi by the adoption of certain indirect measures of control.

Good cultivation is of primary importance; healthy plants growing in a suitable environment with plenty of light and air, are less liable to attack by fungi than those which are in a weakly condition. Certain rusts and mildews, however, tend to attack more virulently plants which are growing exceptionally vigorously. Many diseases can be avoided by careful selection of the site. Fruit trees, for example, suffer from die-back and root-rot, when grown in a badly drained soil, while trees on well drained slopes, entirely escape these diseases. The irrigation of citrus trees by the basin method, whereby water is in contact with the collar of the tree for long periods, induces Gummosis, whereas trees irrigated on the more modern system are rarely affected. Deep earthing up of potatoes will do much to prevent the tubers becoming infected with the Blight diseases.

Orchard sanitation is one of the most important of the indirect measures that can be taken to prevent fungus diseases. Many dangerous fungi produce their reproductive bodies on dead twigs and branches and on fallen or mummied fruit and leaves. These may remain alive for lengthy periods and produce succeeding crops of spores. A typical example of this is the *Diplodia* rot of citrus fruits. This causes a canker on the branches from which spores are spread onto the fruit. Careful and systematic pruning will entirely eliminate this disease. Similarly, every effort should be made to destroy infective material from annual crops. Débris from badly rusted crops will serve to infect succeeding crops if left in the soil. When a crop, such as lentils, has been badly rusted, it is advisable to burn the haulms after thrashing.

Weeds are a source of danger, as many fungi can flourish on them and later attack cultivated crops. This is especially so with some of the rusts which spend part of their life cycle on wild plants. The Black Rust of Wheat can be checked by eradicating the Barberry, and the rust of pears by eradicating diseased Junipers. Many of the cluster-cup stages of rusts on weeds can infect with rusts certain cultivated crops.

Many fungi attack their victims through wounds. In the pruning of fruit trees, a smooth, sloping cut should be made, which will callus over readily. The cut end can be further

protected by painting over with a protective paint or grafting wax. The cut should always be close to a bud, so that no snag of dead wood is left. In the handling of fruit, it is equally important not to bruise or injure the skin, as this enables the many rotting fungi to gain entry. For this reason, wind falls are more likely to rot than hand picked fruit.

Suitable crop rotation plays an important part in limiting the activities of many of the fungi which occasionally cause severe epidemics. Certain fungi can only flourish on certain species of plants. If these are grown year after year on the same land, each succeeding crop will leave an abundant supply of spores in the ground, so that the disease will tend to increase in intensity each year. This is especially so with soil-borne diseases. If, however, suitable intervals are allowed to lapse between two similar crops, the fungus is starved out for lack of a suitable food-plant. For instance, it is safe to sow wheat or oats after a badly rusted crop of beans or lentils.

Large areas sown under one crop, are more liable to a severe epidemic, as each plant acts as a stepping stone and enables the disease to make rapid progress.

In propagating, the use of seed or cuttings from diseased plants is particularly dangerous. This is especially so with plants normally propagated by cuttings or sets, such as the potato. Potatoes affected by the various Virus diseases, such as mosaic and leaf-curl, bacterial diseases, such as Black-leg, and diseases caused by fungi, such as Wilt diseases and Late Blight, all produce tubers which, if used for seed, will produce diseased plants. The systematic "rogueing" of such crops grown for seed and the early elimination of any diseased plants, is one of the most important indirect measures in use and one which the farmer should make the fullest possible use of. The selection of seed from disease-free crops is equally important; it is the only way in which the farmer can be sure of growing cereals free from the Loose Smuts, such as the Loose Smut of Barley and Wheat.

Certain diseases can be spread by feeding diseased material to animals and then utilizing the manure in the field. Thus the spores of the Smut of Maize, when fed to cattle, may continue to live in the manure heap and form a further source of infection. With such plants it is obvious that the diseased material must be burnt or otherwise destroyed.

Time of planting is also a factor in the incidence of fungus diseases. Thus in England, early potatoes are rarely attacked by the Late Blight, because at the time of growing, the blight spores are not in the air. Late sown crops tend to be badly attacked. In Cyprus, the first potato crop may be attacked by Late Blight as weather conditions are then often favourable;

the autumn crop often escapes because of the drier conditions then prevailing. Similarly, early sown cumin crops are liable to attack by the collar rot disease, chiefly because growth is arrested by the low temperature. Plants sown a few weeks later may make better growth and escape the disease.

The modern tendency of combating fungus diseases is in the production and breeding of disease-resistant varieties. This is of particular value in the case of those to which the direct measures of control are not practicable. It is work which must be carried out in each country, as the conditions of environment and the strains of the parasite are, in no two countries, alike.

The use of resistant stocks is of general application in preventing diseases of woody plants. Thus, citrus trees worked on the Seville or Bitter Orange (*Citrus aurantium*) are resistant to the Gummosis disease, whereas trees on the Sweet Lime (*C. aurantifolia*) readily fall a prey to this disease.

An intelligent application of the foregoing principles will do much to enable the farmer to produce healthy crops, without having to resort to the use of expensive fungicides.

DISTRICT NOTES.

ABSTRACTS FROM THE REPORTS OF THE COMMISSIONERS, NICOSIA, FAMAGUSTA, LIMASSOL, PAPHOS, LARNACA AND KYRENIA
FOR THE QUARTER ENDED 30TH JUNE, 1932.

Nicosia District.

Cereals.—The production of wheat is estimated to be 80 per cent. less than that of last year. The ruling price of this field crop is from 4s. 4½cp. to 5s. per kilé, against 3s. to 4s. for the corresponding period of last year.

The production of barley is estimated to be 70 per cent. less than that of last year and the ruling price is from 21cp. to 23cp. Part of the barley crop was used as fodder of the flocks for lack of grass owing to the shortage of rain. Owing to the poor production of grain, a shortage of straw was felt and a good quantity was imported during the quarter. Wheat and barley were also imported.

The production of oats and vetches was a total failure, the yield of which is estimated to be 90 per cent. less than that of last year. The ruling price of the former is 3s. per kilé and of the latter 5s.

Owing to the failure of the field crops a larger area of maize has been sown this year, most of the seed being issued free by the Agricultural Department and the yield is expected to be more than that of last year. Part of the maize plants is given as green food to animals before they yield corn.

Potatoes.—The yield of potatoes is estimated to be equal to that of last year and the ruling price is $\frac{3}{4}$ cp. to 1cp. per oke.

Cotton and Summer Crops.—The production of cotton and other summer crops is estimated to be far less than that of last year. On account of the drought, a small area only has been sown this year.

Milk.—The production of milk was less than that of last year owing to lack of grass for flocks to feed on.

Sericulture.—The production of silkworm is estimated to be less than that of last year and this is due to a less quantity of silkworm eggs being used. Owing to the low price of cocoons averaging from 7cp. to 9cp. per oke, the greater quantity of the yield of cocoons has been reeled into silk and weaved by the producers.

Famagusta District.

Potatoes.—Production was exceptionally good but prices were low.

Carobs.—A poor output is anticipated generally though in some localities prospects are fair.

Olives.—A meagre collection is anticipated.

Citrus.—Prospects are fairly bright in spite of the heavy "June drop."

Cereals.—Taken on an average, the harvest of both, wheat and barley, has been fair. On the Karpas and Cape Greco production was actually better than in 1931, but almost total failure has to be recorded in the western parts of the Messaoria.

Vetches and Favetta.—The yield was fair.

Tobacco.—The planting of tobacco in the district, judging by the number of applications coming in, is likely to be appreciably greater than the previous year.

Limassol District.

The harvest in the plain villages, except in those in which irrigation facilities exist, has been poorer than any other year on record, but in the hill villages has been fair. The average quantity produced this year in this district is below 50 per cent. of last year's production which also was below the average. In addition to the poor production of grain, shortage in straw is equally affecting the farmer. A good deal of wheat, barley and straw was imported during the quarter.

Carobs.—The crop in the low villages is expected to be fair, but in the hill villages very poor. The average production of the district is estimated to be 40 per cent., less than last year, if unfavourable winds will not reduce it further. The prices during the quarter were 10s. to 12s. 4½cp. per cantar, as compared with 6s. 7cp. to 8s. 2cp. last year.

Raisins.—The prices during the quarter were 1½cp. to 2½cp. against 3½cp. to 4½cp. of last year.

Wines.—The export of wine during the quarter under review is 328,162 gallons against 582,326 of last year.

Paphos District.

Cereals.—In certain parts of the district the cereal harvest was a complete failure owing to the almost total absence of rain. At Peyia, for instance, a large village only some 10 miles distant from Ktima, there was practically no rain at all with the result that it is estimated that farmers did not harvest more than 1,200 kilés of wheat, as against an average annual crop of some 12,000 to 15,000 kilés. Somewhat similar conditions obtained in the group of villages near Lyso, e.g., Sarama, Istingo, Philousa, Tremythousa, Peristerona, Steni, Melandra and, to some extent, in the Tylliria region adjoining the Nicosia boundary, notably at the village of Pomos. In other parts of the district the harvest was poor, but it could more properly be compared with the ordinary fluctuations of good and bad years and did not approach the almost total failure that was recorded at the places mentioned. In a few villages, curiously enough, such as Episkopi, Letymbou and Kallepia, the harvest has been better than the inhabitants had ever before experienced.

Livestock.—The drought has had a very serious effect on the live stock of the district. Not having enough fodder to feed their animals, farmers have been compelled to sell them at very low prices. Draught animals have fetched from £1 to £6 a head, as against £12 to £25 in normal times. Sheep and goats have been sold for 5s. to 18s. a head. The numbers of the latter had been greatly reduced by mortality in the earlier part of the year as was noted in the previous quarterly report. The poorer farmers have now reduced their draught animals to an average of about one per family.

Fruit Trees.—The season was favourable for all fruit and almonds, apricots and plums were abundant.

Though the olive crop will be very small, it is confidently expected that carobs will be reasonably good. If the price keeps up, as it is now, in the neighbourhood of 10s. a cantar, this will provide a most welcome relief to the distress caused by the partial failure of the cereal harvest.

The condition of the vineyards is most promising.

Sericulture.—The production of cocoons was satisfactory. Both the quality and the yield per ounce of seed were better than last year.

Larnaca District.

Cereals.—Owing to the drought harvest, prospects with regard to cereals in most of the villages are poor, with the exception of the villages of:—

Xylophago, Xylotymbo, Ormidhia, Pyla, Voroklini, Alethriko, Anklisides, Kivisil, Anaphotia, Mazoto, Kophino and Ayios Theodoros, where the average production is 20 per cent. more than in 1931.

Carob crop likely to be a poor one and olives in hill villages most disappointing owing to lack of rain in winter and spring.

Kyrenia District.

Cereals.—The production of straw and grain for wheat and barley is considerably below average. With regard to oats, a very small quantity has been harvested, as most of it was consumed as green fodder. Prices of wheat ranged between 5s. to 6s. per kilé and for barley 2s. to 2s. 4½cp. per kilé.

Vetches.—The yield of this product has varied according to localities, and in some places it has almost been normal. Prices were 4s. to 4s. 4½cp. per kilé.

Potatoes.—A good crop of potatoes was harvested but prices are low, £4 to £4 10s. per ton being paid.

Tobacco.—The area under tobacco cultivation this year has been considerably reduced. It is estimated, however, that there will be a good yield per donum and the quality improved.

Cotton.—A very limited area was planted to cotton owing to the dryness of the soil and the diminution of water for irrigation.

The germination of seed has been irregular and it is expected that a poor yield will result.

Carobs.—It is estimated that this product will be about a third to a half less than last year's yield.

Olives.—A very poor crop of olives will be recorded this season.

Citrus Fruits.—Judging from the amount of fruit to be seen on the trees, it is feared that the yield of these commodities will share the same fate as other crops, and be considerably less than last year.

Sericulture.—As forecast in my Quarterly Report, the corresponding period in 1931, the low price offered for cocoons then, has resulted in a very small quantity of silkworms being hatched this season. Demonstrations in Sericulture were carried out at twenty-one Girls' Schools under the supervision of a temporarily appointed Sericultural Inspector. The production of cocoons on the whole has been satisfactory, and the highest and average obtained per dram of seed at the schools was 8 okes, 50 drams, and 5 okes, 40 drams respectively. This is very satisfactory and great credit to the teachers and pupils; and especially when compared with hatchings in private houses where only 20–22 okes of cocoons per ounce (16 drams) of seed were obtained.

Cyprus Agricultural College, Nicosia.

The following are the results of the Annual Examinations during the College year 1931-32 :—

1st year's students who have qualified for the second year's course.

<i>Names.</i>	<i>Total average mark out of 100.</i>				
1. Simon Vassiliou	93.50				
2. Georgios Demetriades	93.20				
3. Vassilios Papadopoulos	92.13				
4. Houssein Niazi	92.47				
5. Kiazim Nami	89.69				
6. Chrysostomos Riris	88.70				
7. Agamemnon Pericleous	87.63				
8. Imbrahim Hakki	83.64				
9. Mehmet Reshat	81.80				
10. Salahi Suleiman	81.43				
11. Ali Ekrem	80.54				

2nd year's students who have qualified for the third year's course.

1. Costas Stavrou	87.93				
2. Christos Neophytou	85.87				
3. Epaminondas Avraam	84.27				
4. Solomon Solomondos	83.50				
5. Evangelos Iacovou	81.83				
6. Chrysostomos Papasolomondos.. .. .	80.97				
7. Neoptolemos Apostolides	79.40				
8. Christoforos Ttofariides	79.27				

The following students passed the third year's final examination and have received the College Certificate as provided for in the Syllabus of the College :—

1. Hussein Vehit	88.56				
2. Antonios Papacharalambous	87.26				
3. Moustafa Vehbi	86.20				

FORESTRY DEPARTMENT OF CYPRUS.

HEADQUARTERS.—NICOSIA.

**DISTRICT HEADQUARTERS.—FAMAGUSTA, LARNACA, LIMASSOL,
PAPHOS AND KYRENIA.**

NURSERIES FOR DISTRIBUTION OF PLANTS :—

NICOSIA DISTRICT.—Nicosia, Miamilea, Athalassa, Ay. Dometios, Kioni Machæra, Pasha Livadhi, Troödos Station, Kapatzi (near Evrykhon), Platanoudia, Alabatjia, Arkatji tis Vrysis, Selladi tou Petrou.

LARNACA DISTRICT.—Dikellia, Akhna, Larnaca, Korno, St. Lazaros Laxia tou Spyrou, Laxia tou Moustafa, Laxia tou Pattishi Vattena, Laxia Aloupou.

LIMASSOL DISTRICT.—Cherkes, Platræs, Kakomali.

PAPHOS DISTRICT.—Limni, Chrysokhou, Kefalovrysha, Stavros, Peli Marsh, Moullia Rocks, Elijes, Mavres Sykies, Exo Mylos, Livadhi, Rizas (Steraja), Kampo tis Eclisias, Ayia, Appidhes-Tripilos.

KYRENIA DISTRICT.—Ay. Irini, Mylous-Kyrenia, Boghaz, Halefka, Ditch, Ay. Hilarion, Sharides, Aghirda, Diorios.

FAMAGUSTA DISTRICT.—Rizokarpaso, Akrades, Limnares, Koronia, Boghaz-Monagra, Vallia, Varosha, Fresh Water Lake, Dennarka, Ambelia, Galinoporni, Salamis, Stavrides.

Seeds of over twenty species both indigenous and exotics, especially acacia cyanophylla, common cypress and pine for sale at Nicosia.

TIMBER STORES FOR THE SALE OF TIMBER :—

NICOSIA DISTRICT.—Nicosia, Evrykhon, Kalokhorio, Karavostasi, Pedoulas, Kolopanayiotis, Morphou, Polystipos, Dali, Lythrodonda, Deftera, Athienou, Kythraë, Klirou, Kokkini Trimithia, Troödos, Selladi tou Petrou, Panayia Bridge.

LARNACA DISTRICT.—Larnaca, Lefkara, Ora, Akhna.

LIMASSOL DISTRICT.—Limassol, Platræs, Anoyira, Agros, Omodhos.

PAPHOS DISTRICT.—Paphos, Latzi, Kathikas, Arminou, Kelokethara, Pano Panayia, Evretou, Ay. Nikolaos, Ay. Mercourios, Stavros Psokas, Yialia seashore.

KYRENIA DISTRICT.—Kyrenia, Myrtou, Ay. Amvrosios.

FAMAGUSTA DISTRICT.—Famagusta, Lefkoniko, Triкомо, Marathovouno, Asha, Paralimni, Akanthou, Yialousa, Koma tou Yialou, Ay. Theodoros, Komi Kebir, Rizokarpaso.

STORES FOR THE SALE OF FUEL :—

Nicosia, Evrykhon, Kalokhorio, Pedoulas, Limassol, Polemidia.
During summer season at Troödos and Platræs.

STORES FOR THE SALE OF SLABS :—

Nicosia, Evrykhon, Kalokhorio, Pedoulas, Larnaca, Paphos.

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EDITORIAL NOTES.

ALTHOUGH the long and protracted drought has broken and good rains fell in the hills in October, and fairly generally in November in all parts, there has been very little rain, except in a few favoured localities, during December up to the 22nd of the month. The weather moreover has been unusually cold, frosty nights being experienced and cold dry winds, with hot sun by day, which has had a withering effect on the barley and has not provided good growing conditions for cereals and other crops. So long as this low temperature continues there is little hope of rain and farmers are again becoming anxious in regard to their crops and live stock. The outlook for 1933, as we go to press, is, therefore, none too hopeful and we anxiously await further rains and better weather conditions.

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The Department of Agriculture has kept in close touch with the position of the farmers in the Districts, as the result of the failure of last winter's rains and relief measures have been taken by the Government in affording employment on Public Works and in making loans of seed corn and fodder to distressed villages. Up to the present some 38,000 kilés of clean seed wheat and 25,600 kilés of seed barley have been distributed by the Department of Agriculture to distressed villages throughout the Island. This seed has been purchased from the £14,000 made available by the Government for this purpose. In addition, nearly 500 tons of fodder have been purchased for issue on loan to distressed villages for feeding the animals of needy farmers. This was purchased by the sum (£2,000) made available by the Loan Commissioners.

Supplementary seed corn and fodder loans have been made possible through the generosity of Mr. D. G. Dianellos of Larnaca who, in sympathy for the farmers and in recognition and appreciation of the great relief afforded by the Government to them in making these loans, has placed funds at the disposal of the Government on loan. Some further 5,000 kilés of seed wheat, 1,000 kilés of barley and nearly 1,000 tons of fodder (chopped straw) are being purchased with these funds for making further loans to needy farmers, which action is greatly appreciated by them.

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In spite of the low condition of all live stock during the past summer and autumn, the incidence of contagious disease has not been serious. The occurrence of Goat Pox in Mora, Tehumlekji, Asha, Livadhia (Larnaca) and Pyla has not been accompanied by heavy mortality and it is hoped that it will be possible to remove the quarantine restrictions early so that the sale of young lambs will not be interfered with.

Sheep and goats in most parts of the Colony are heavily infested with lice and ticks. It is satisfactory to record that in many areas the flock owners have at last realized the value of treating their animals for the destruction of these parasites. The Veterinary Service continues to demonstrate the methods of dipping sheep and goats and there is an increasing demand for the dipping powder which is issued free of charge.

Successful demonstrations have also been carried out by the Veterinary staff in spraying cattle for the destruction of ticks and lice, and there has been a heavy demand for the drug which is used for this purpose. Cattle owners have quickly appreciated the improvement in the general condition of animals which have been properly sprayed.

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The Department of Agriculture is gradually transferring its work connected with crop trials, etc., to Morphou, where land has been acquired for a Central Experiment Farm. It will be recollected that last year the trials with cereals, which had formerly been carried out at Metochi near Nicosia, were continued at Morphou and the results which have been reported from time to time were fully up to expectation and gave very useful data. These cereal trials will be continued at Morphou this season on an extended scale. An important discovery of water has been made on the site of the Farm and a pumping installation will shortly be provided, which will enable the Department to carry out irrigation trials and to establish permanent nurseries for the supply of nursery stock to the whole Island.

Tractor trials are now being carried out at the Central Experiment Farm, Morphou. These tractors and power implements have been made available from the grant of the Colonial Development Committee as likewise have the threshing machines imported last season. Farmers interested in tractor ploughing and the hire of these tractors for ploughing have been invited by the Director of Agriculture, through the local press, to visit Morphou and witness the trials and demonstrations.

Up to the present 1,100 applications have been received for licences to plant tobacco according to the requirements of the Tobacco Law, 1932.

Applications for licences have been received from the various Districts as follows :—

Nicosia	28
Famagusta	806
Kyrenia	193
Larnaca	35
Limassol	15
Paphos	23

Total	1,100
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In other pages we publish a report by the Imperial Institute on Psyllium Seed. This seed was imported by the Director of Agriculture and sown in his garden at Athalassa. The seed is the source of a medicine, valued more particularly in the United States of America and known there as "Psylla;" it is a laxative and its medicinal properties and value are due to the mucilaginous content of the seed which swells several times its volume when mixed with water. The cultivation of this plant was undertaken during an unfavourable year of drought and it is probable that under normal conditions better quality seed would have been produced. The experiment is being repeated.

We publish this month the result of the cotton experiments made at Morphou in 1932. These trials were designed to test different imported varieties and the results of certain types of fertilizers but more especially the most suitable time for sowing cotton in Cyprus. These experiments prove what has been manifest to the Department for some time and that is that early sowing is the only way to escape the attacks of the Pink Boll Worm and to obtain a good healthy crop of cotton. The cotton sown at the end of March and beginning of April ripened its bolls without a single attack of the Pink Boll Worm, but cotton sown at the customary time, viz., May to June, was heavily attacked by this pest. Therefore, farmers would be well advised to sow early.

Mr. C. Schnell, Furs and Skins Expert of the Department of Agriculture, will take over the Demonstrational Tannery of the Department as a private enterprise from the 1st January, 1933, and those requiring skins, fur and leather goods are requested to communicate direct with him on the subject.

The services of Mr. Schnell will still be retained by Government in an Advisory capacity and he will still be available to advise local tanners on their problems.

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During the last few years good progress has been made in the introduction of agricultural implements, more particularly in regard to ploughs, harrows and reaping machines. A few tractors and motor ploughs are also in use. Although the farmer has realized the advantages of the use of improved agricultural implements, he does not usually appreciate that these implements, which frequently cost a good deal of money, require a certain care when not in use. The visitor will notice, as he travels around the Island, ploughs, harrows and reapers and sometimes tractors and threshers, lying in the yards or in the streets of villages or in the fields, exposed in the winter to the rains and in the summer to intensive heat. The iron work of these implements gets rusty and agricultural machinery containing woodwork suffers from exposure to the sun. Care should be taken to house farm implements so that they may be protected from the weather and before housing they should be properly cleaned and if necessary painted or greased to prevent rust.

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It is customary to graze animals in the vineyards soon after the vintage is over and before the leaves of the vines have matured. This is detrimental to the vines and to production the following season, for grazing off of the vine leaves prevents the proper ripening of the shoots and buds and so adversely affects production the following season. There is no objection to feeding to domestic animals the leaves after they have fallen.

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It is also customary to remove all the leaves from mulberry trees before they have matured to feed to animals. This also is detrimental to the mulberry trees and the practice should be deprecated. There is no objection to making use of fresh fallen leaves, but as the young leaves are gathered in the spring for feeding silkworm, it is desirable to allow the leaves left on the tree to ripen naturally and so help to preserve the health and productivity of the tree.

Merchants, who export potatoes to Egypt, should note that such potatoes are fumigated on arrival there for the destruction of Tuber Moth, and from information which has been received, it appears that the consignment which left Famagusta on 3rd November, received somewhat severe treatment and was finally rendered unfit for consumption and had to be destroyed.

It appears that the fumigation may cause darkening of the tubers in places where they have been scratched or the skin broken and rotting then follows, and care should, therefore, be taken to avoid any injury to the tubers or breakage of the skin during the processes of lifting, storing and packing, so that the tubers may not suffer damage when fumigated in Egypt. Every care should, of course, be taken to avoid including potatoes containing larvæ of the Tuber Moth or which have been damaged previously by this insect as the injury caused by these attacks will also cause darkening and rotting when fumigated.

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Citrus growers should not lose sight of the fact that there is a demand for Cyprus bitter oranges in the United Kingdom market. In order that Cyprus marmalade may retain its position and become firmly established on the British market, it is necessary that the continuity of supply of bitter oranges to manufacturers may be assured. South Africa has now placed on the market a marmalade made from South African bitter oranges, of which, it is believed, there is an unlimited supply. In the March, 1932, issue of this "Journal," growers were advised to produce more bitter oranges in view of the steady demand for same and opportunity is taken to again draw attention to this market demand. Shipments amounting to 139 cases of bitter oranges have been made from Famagusta during the week ending the 17th December, 1932, to marmalade manufacturers.

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The import of flour has increased considerably since 1930. As will be seen from the statement below, the import of flour in 1932 has reached a record figure and this, of course, is due to the partial failure of cereals in consequence of the drought.

Year.					Quantity			Value
					—			—
					cwt.			£
1928	..	..	..	..	335,174	..	..	253,021
1929	..	..	..	..	320,103	..	..	222,528
1930	..	..	..	..	216,285	..	..	126,108
1931	..	..	..	..	408,692	..	..	150,493
1932	..	..	..	..	541,446	..	..	203,158

The 1932 crop of carobs has been estimated at 35,000 tons. After deducting the exports for September, October and November, 1932, and adding the old stock from the 1931 crop remaining unshipped at the time of harvest, it is estimated the stock of carobs in the Island on the 1st December was some 31,745 tons. In comparing the figures in December this year with that of last year it is found that stocks in hand and production of carobs are almost half of that of last year.

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The Ottoman Bank Monthly Circular contains interesting notes on the trade, commerce and crop prospects of countries in the Near East. In the September-October issue of 1932, the following notes referring to the Tobacco and Silk markets in Turkey are quoted :—

Tobacco.—The tobacco market improved slightly during August and September, due principally to the less abundant crops in all the eastern tobacco producing countries.

Silk.—The improvement continues in this market. Spinning-mills and looms are working normally, and the production is regularly disposed of. Quotations for raw silk are maintained between Ltq. 11 and 12, according to quality.

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The annual prizes for the best School Gardens in each District of the Colony during the year, 1932, have been awarded by the Department of Agriculture to 53 School Gardens and 94 schoolmasters.

The Colony prize for 1932, was divided amongst the following School Gardens : Gypsos, Kythrea and Karavas.

The schoolmasters, who were trained in the special course in Agriculture for schoolmasters, have shown very great interest in the improvement of their School Gardens.

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Proposals to equip certain School Gardens with a sprayer and sulphuring bellows for demonstration purposes has been approved by the Board of Education. During 1932, arrangements have been made to purchase 16 sprayers and 14 bellows, and it is expected that more schools will be furnished with this equipment in 1933.



Report on Psyllium Seed from Cyprus.

By the Imperial Institute.

THE sample of Psyllium seed, which is the subject of this report, was forwarded to the Imperial Institute by the Director of Agriculture, and is referred to in his letter No. Agr. 264/1931 of the 24th September, 1932.

It was desired to ascertain the quality of the seed and its value on the London market.

DESCRIPTION.

The sample weighed 7 oz. and consisted of small ovoid seeds, dark chocolate-brown in colour, and of dull appearance. A very small amount of fine, light-coloured extraneous matter (partly plant and partly mineral) was present. Samples of commercial Spanish, Italian and French Psyllium seed with which the present sample was compared, were dark brown, had a glossy surface, and were on the whole almost free from extraneous matter.

RESULTS OF EXAMINATION.

The size and weight of the seeds are shown in the following table :—

			<i>Length</i> (approx.)	<i>Breadth</i> (approx.)	<i>Weight of</i> 100 seeds.
			mm.	mm.	grams.
Present sample	..	..	3	1½	0.13
Commercial samples :—					
Spanish..	..	..	2	0½	0.06
Italian ..	..	..	2½	1	0.11
French (a)	..	..	3	1½	0.15
do. (b)	..	..	3	1½	0.15

The moisture and oil content of the present sample and of commercial Spanish and French Psyllium seed were found to be as follows :—

			<i>Present Sample.</i>	<i>Commercial Samples.</i>	
				<i>Spanish.</i>	<i>French.</i>
			per cent.	per cent.	per cent.
Moisture	..	..	8.3	11.7	10.7
Oil ..	..	..	7.0	6.4	8.2

A comparison of the amount of mucilage, present in the three samples, showed that in this respect the Cyprus seeds were intermediate between the Spanish and the French seeds.

The foregoing results show that although the present seeds had a less attractive appearance than the usual commercial varieties, they were similar in size and weight to the French product and rather larger than the Spanish and Italian. They also yielded satisfactory amounts of mucilage and oil.

COMMERCIAL VALUE.

The seeds were submitted to two firms of importers in London, who furnished the following observations:—

(a) "The approximate value to-day of French and other kinds of Psyllium seed is 50s. per cwt., but such seeds have been cleaned and sifted, special machinery having been installed for this purpose. The present sample from Cyprus possibly has a similar commercial value, but it has a dull instead of a brilliant appearance as with the French, Spanish and Italian. If it could be improved so as to equal in appearance these other varieties, we think there is a fair possibility of Cyprus being able to market the article, and if we can prove of any help in this connection, we shall be pleased to hear further from you.

We would be very interested to know whether Psyllium can be produced by Cyprus in quantity, and approximately when they will be ready to export the article.

(b) There are two distinct kinds of Psyllium seed at present sold on this market, the French to which the Italian and Spanish approximate, and the Indian. The latter is now coming more into prominence and, although grey in colour, its mucilaginous content is very good. The Cyprus seed seems to us to approximate to the French variety."

REMARKS.

This Psyllium seed from Cyprus compares favourably with supplies from other sources except that it has a dull appearance. If it could be improved in this respect, it would probably be readily saleable at the current market price.

A small sample of the French seed is attached for comparison with the Cyprus product.



Colonial Advisory Council of Agriculture and Animal Health.

REPORT OF THE AGRICULTURAL ADVISER TO THE SECRETARY OF STATE FOR THE COLONIES ON HIS VISIT TO THE WEST INDIES.

THE report of Mr. F. A. Stockdale, C.M.G., C.B.E., Agricultural Adviser to the Secretary of State for the Colonies, on his visit to the West Indies has recently been published.

The report gives a description of the work, aims and future of the Imperial College of Tropical Agriculture at considerable length ; the valuable part this institution plays in co-operation with the various Agricultural Departments is worthy of note.

The necessity for expert Plant Pathologists in the Agricultural Departments in tropical Colonies is clearly shown. This is especially so in those countries where the agriculture is largely concerned with one or more major crops. In such instances waves of serious epidemics may well spell disaster to the agricultural community, unless the problems are tackled with energy and foresight. To consider the West Indies alone, the lime industry of Dominica is threatened by the withertip disease, the banana industry of Jamaica by the Panama disease and the cacao industry of Trinidad by the dreaded witch broom disease.

With regard to the above problems a very full account is given of the history and present position of the Panama disease of bananas in Jamaica and the witch broom disease in Trinidad.

There are many points of the report of interest to Agriculturists in Cyprus and producers in Cyprus would do well to study the success attained by the various Associations and Societies which control the marketing of the more important export crops in the West Indies.

The references to the development of citrus production is of special interest to Cyprus, especially to the citrus industry in Trinidad and Jamaica.

In the Section of the report dealing with Trinidad the following paragraph is abstracted :—

“ The Department of Agriculture has at St. Augustine also laid out a Citrus Experiment Station covering nearly 45 acres. In this variety trials are being made with grapefruit, limes, and oranges and tests are being carried out with different stocks, buds, methods of cultivation, and fertilizers. The work of this Station is full of interest and should be of inestimable value, not only to the citrus industry of Trinidad, but also to the West Indies generally. In grapefruit, Marsh Seedless, Foster, Walters, and Duncan

have given yields in the order named, whilst with oranges the best results have been obtained with Jaffas and Parson Brown, and the least favourable with Washington Navel. This last-named orange is of very doubtful value for cultivation under tropical conditions. Stock tests include sour Seville, sweet Seville, rough lemon, and wild grapefruit, whilst special attention is being given to the subject of height of budding, as it is clear that for some of the wet heavy soils of Trinidad a budding height of 15 to 18 inches will not be too high if gummosis is to be avoided or reduced. The commonly accepted height in Trinidad is 12 to 15 inches, and there is rightly an increasing tendency towards adopting the larger height. I was able to see on one grapefruit property in the Island some of the earlier mistakes of low planting, poor holes, and insufficient drainage, as well as most interesting work of inarching where gummosis has been serious. Old trees were successfully being supplied with new rooting systems of sour orange by inarching two to four plants into the bark of the stem of each old tree above the damaged bark area. It is also now well recognized that for citrus large holes should be dug; that they should be well filled, and that planting should be done on mounds if the best results are to be secured. Grapefruit does not appear to be particular in regard to soils in Trinidad and with reasonable attention produces excellent crops. Cultivation consists of lopping and mulching grass and weed growth, whilst in old trees the yield and size and quality of the fruit is only maintained by manuring with applications of mixed fertilizers ranging from 3 to 8 lb. per tree. The work which has been done to establish this new industry in Trinidad is most creditable to all concerned, and British Honduras and several other tropical Colonies contemplating the establishment of grape fruit industries can secure most useful information from the organizations created and the work done by the Department of Agriculture of Trinidad."

The following abstract on the citrus industry in Jamaica stress the importance of the need for organization in the citrus industry :—

"It is, however, to the planting of citrus that the direction of those with abandoned banana lands is being mainly directed. The citrus industry in Jamaica languished for a number of years, but, with the formation of a Citrus Producers' Association and the establishment of a Central Packing House, the industry has considerably revived. There has been a strong revival of trade in the United Kingdom and Canada as the result of the preferences which have been granted by the respective Governments. Considerable

interest was being shown in citrus production at the time of my visit, and I was afforded an opportunity of being placed in touch with the work of the Producers' Association. The Central Packing House is well equipped, but would be improved by the installation of pre-cooling equipment. There has been a good demand for grapefruit in the markets of the United Kingdom and Canada, and for oranges in Canada, and small quantities of a satisfactory canned grapefruit have been produced. Citrus fruit in Jamaica receives little cultivation by smallholders and many of the estate cultivations leave much to be desired. I was able to visit the citrus property belonging to the United Fruit Company at Manchester Pastures and there see what can be accomplished by careful attention to cultivation and manuring. The grove was in excellent condition, and increasing crops were being secured since cultivation had been properly attended to. Heavy manuring with up to 20lb. of mixed fertilizer per tree was practised, and the increased yields secured were held to warrant the system in vogue. There is no doubt as to the suitability of large areas of Jamaica for citrus cultivation. Gummosis is rarely encountered; scales, although present, are not excessively troublesome; and a parasite has recently been sent from Porto Rico by Dr. Myers for the control of the blue-grey fly pest. The sour orange stock appears to be the most suitable, and budding at 9 to 12 inches appears to be adequate on account of the relatively dry conditions prevailing. Seedling grapefruit stock has also been used but does not seem to be suitable, except perhaps for the Marsh Seedless variety. However, it should not be overlooked that the majority of the grapefruit are seedlings and that much of the budded plants supplied by nurseries are very indifferent and of poor quality. Poor budding, twisted tap roots, inferior plants were defects which were frequently noted during inspections of young citrus in various parts of the Island. The fruits from seedling trees are usually full of seed and of poor keeping quality. They are often full of "rag" and quickly go dry and pithy. Whilst it is admitted that many of the fruits from seedling trees are of the finest quality when freshly picked, this is not general, and if a sound grapefruit industry is to be built up in Jamaica, it must be on the produce of budded trees. Otherwise, disappointment is bound to be experienced in the end. Nor is it sufficient that budded trees are grown, but they must be budded trees from trees of accepted merit on the markets, which have been well tested for quality and yielding capacity. This will necessitate organization of supplies and the provision of an adequate staff of instructors trained in citrus cultivation for service amongst the growers.

A citrus industry cannot be established with haphazard methods. It may progress for a time, but it will inevitably succumb eventually to the competition which is certain to meet. The Canadian market is not as yet particular as to the class of citrus produce it receives. It has been in the habit of taking the lower grades of the American industry, and it demands its supplies at low prices. This will, however, change, and the Canadian market is bound to become more and more discriminating in regard to its supplies. Already complaints have been made as regards the variability of quality of the Jamaica fruit, and this is not unexpected when the supplies are mainly from seedling trees. The English market demands quality at all times, and, therefore, once is forced to the conclusion that the citrus industry of Jamaica can only develop with confidence if it pays heed to these dictates of the consuming markets for quality. There are, as stated above, considerable possibilities before the development of a citrus industry in Jamaica, but it will only be based on a sound foundation if attention is given to the proper organization of supplies of accredited budded material for planting, and by the provision of a service of trained instructors for educational and instructional purposes. It is only the man fully trained in citrus culture who is capable of rendering specialized service to the growers when attempting to build up a citrus industry amongst small producers."

The Protection of Trees from Hail, Frost and Cold Winds.

FRUIT trees, as well as vegetables, have to contend not only with insect pests, fungus and other diseases, but are also affected by adverse weather conditions, such as strong winds, high temperature, hail, frost and drought.

It has been ascertained that the damage to trees from frost injury in this country in some years, as the present one, is considerable. In certain areas, one can see very old Eucalyptus trees, planted since the British Occupation, as well as whole acacia plantations badly attacked by frost. Unfortunately, though, the trouble is also evident in many citrus groves.

Frost usually damages the foliage and fruit as well as tender parts of the tree, such as twigs, but when this is severe it may cause the death of branches or even whole trees, in which case the damage is of course considerably more.

It has been noticed that in certain exposed areas, where this damage has been most serious, the growers are disheartened and are even contemplating abandoning their plantations. To such discouraged cultivators we offer the following suggestions for the protection of their trees from frost.

Most of the extensively cultivated crops and trees grown in many countries have been introduced there from other countries, where the environmental conditions under which they originally thrived were very different. Under careful management, though, these plants became gradually acclimatized and well established in their new surroundings. But although the majority of these to all intents, have adapted themselves to the conditions of the new country, nevertheless, with the advent of adverse weather conditions, a number of less hardy plants suffer the consequences of their removal from their natural environment. For such plants methods have been devised to protect them, if they are valuable or remunerative enough, from the excessive cold weather and more especially frost.

As examples of these protective measures we give the so-called "Green" or "Glass Hot Houses," which are large structures, fitted with glass on all sides and artificially heated, in which such tender and warmth loving plants as tomatoes, cucumbers, melons or even trees of tropical or subtropical countries can be successfully cultivated in comparatively cold climates.

Needless to say, though, these protective measures are costly and their use can only be restricted to valuable or highly remunerative plants. Apart from these, other less expensive methods have been devised for the protection of trees, such as orange trees, from the ravages of unfavourable weather. These consist of tin, sack or reed covers, with which the susceptible trees are protected during the likely periods for frost.

The initial expense may be rather high and will probably be considered by some growers as not worth their while, but when the severe damage caused by frost alone is reckoned, both directly and indirectly, no doubt the outlay will be considered negligible. These protective covers can be stored, when not in use, for the following reason.

It should be noted that the use of such covers is more effective and easy of manipulation when the plants are in regular rows and are methodically pruned to a medium or rather short height.

At Sorrento and many other areas of Southern Italy, where frosts are a frequent occurrence, hundred of donums of gardens are protected with can trays and straw covers.

In this connection it may be of interest to mention that citrus orchards in California and Florida are periodically subject to frost damage, as occurred in the Lefka groves last year, and there oil smudgers are used. The burning of heavy oil in these smudgers causes a heavy cloud of smoke to arise and prevents damage from frost. The use of these smudgers in Cyprus should be considered during periods when frost is likely to occur and cause damage to citrus trees.

A Study of Cyprus Salt.

By S. G. WILLIMOTT, PH. D. (Cantab.), etc., *Government Analyst*.

FROM ancient times the Salines of Larnaca have been famous as an inexhaustible supply of domestic salt and many references of great interest are to be found in early writings. Dioscorides¹ states that "the best known salt was that of Cyprus," an opinion confirmed by Pliny. In what is perhaps the first printed account of Cyprus, a sonnet of Zamberti² in the Venetian dialect (1485), mention is made of the abundance of salt in the Island. From Felix Faber,² a Dominican monk who visited the Salines in 1480 and 1483, we obtain a sidelight on the flourishing condition of the salt industry of Larnaca in the closing years of the Lusignan dynasty. All these early observers express wonder at the production of salt, which they regarded as miraculous, and amazement at the spectacle of the lake in summer, which was aptly described as "a frozen sea of snowy whiteness." The salt lakes are found in two places. The most important, often known as "the Salines," lies a mile or so to the south-west of Larnaca; it has an area of two square miles and is ten miles in circumference. The other lake is found to the south-west of Limassol on the Akrotiri peninsula. All these lakes occur amongst rocks of Quaternary formation. Only the Larnaca lake is now used for commercial salt production.

THE VENETIAN REGIME.

We are indebted to the translations of Cobham² for several detailed accounts of the Salt Lake under the Venetians. If, indeed, little was done for Cyprus under the Republic, at least the Salt lake was well served and would appear to have reached its fullest development during their regime. Salt has always been a monopoly of the State in Cyprus and in Venetian days was a source of immense revenue, a figure as high as £125,000 per annum being quoted.

The lake was protected by a surrounding wall and was guarded day and night. The winter torrents from Stavrovouni and the surrounding hills were allowed to fill the lake to a certain depth, the superfluous water being dammed out by specially constructed sluice gates and channels. On the other hand, in seasons of drought, sea water was let into the lake to the required depth by means of canals cut through the intervening bank to the sea. The salt was collected by hand from July to September, when the summer heat was greatest, and the method of collection was of the simplest description just as it is to-day. Areas of salt were marked out and the solid crust carefully lifted off the mud bottom with shovels and laid in little heaps for the brine to drain off. It was then loaded into sacks, carried to the shore by donkey, and there stacked in huge heaps in the open. The export trade was evidently considerable and there was a standing

rule that all Venetian ships calling at Larnaca must abandon their ballast and load salt for transport to Venice. After the Turkish conquest everything was neglected and mismanaged and the industry greatly declined, but in spite of this the Salt Lake continued to produce much local revenue which was an Imperial right of the Sultan. Under British rule, the same method of salt production continues and no changes of importance have been effected. At the present day, salt is formed only in favourable seasons, when rain has not been excessive during the preceding winter. When salt is formed, the crust of which is from two to three inches thick, Government collects about 5,000 tons, a quantity sufficient for the needs of the Island until the next harvest. This amount represents about 10 per cent. only of the available salt in the lake.

ORIGIN.

The true origin of the salt lakes is a problem of some interest and in spite of much speculation still remains a matter of debate. Theories have ranged from the legendary curse of Lazarus, which turned everything to salt, to the recent ideas of Bellamy, but no convincing answer has yet been given to the riddle of the salt lakes. In fact, a critical examination of the different theories which have been advanced reveals serious objections to all of them. Amongst Cypriots a popular belief is that the lake fills up each winter from rain water running off the surrounding hills and carrying sodium chloride in solution. This theory can be rejected at once since examination of the incoming waters shows that their salinity is insignificant. Professor Gaudry³ believes that the south wind in winter is strong enough to bank up the sea and force it over the intervening bank of earth and so apparently into the lake. But the improbability of this must be obvious to anyone familiar with this coast. Unger,⁴ on the other hand, believes that the salt is derived from the sea, presumably because of its proximity and the fact that the lake bottom is 10 feet below sea level. He considers that the sea water percolates through the intervening porous soil to the lake, bringing both to the same hydrostatic level. Somewhat irrationally, on this theory, the total inflow of sea water during the summer, when the lake is dry for about three months, is thought not to compensate for the solar evaporation. Lastly, Bellamy⁵ believes with Unger that the sea water percolates through a certain stratum of sandy clay into the depression of the Salt Lake. In essentials this is much the same theory as Unger's and the same objections apply. In order to accept this explanation it is necessary to believe that the hydrostatic system, supplying the Lake from the sea, conveniently ceases its operation during the summer in order that the salt may dry up. Moreover, contrary to the findings of Bellamy, the sub-soil water in the intervening bar between lake and sea is not unduly saline and

is constantly used by man and beast as potable water. From these facts there appears to be little infiltration of sea-water. A final objection is the information derived from chemical analysis of lake salt and sea salt. If the salt were derived from the sea it would be reasonable to expect its composition to approach that of sea salt, especially in its content of magnesium salts and bromides (vide Tables I and II), whereas the analysis of Larnaca salt is clearly suggestive of rock salt.

These objections disappear if it is allowed that the salt of the Larnaca Lake is derived from vast underground deposits of rock salt, formed in past ages by the evaporation of inland seas. The action of rain and river water running into the lake in winter is simply to leach out as much salt as it can dissolve from the underlying deposits. With no further rain the heat of summer is sufficient to evaporate the water and leave the salt. The possible objection that the quantity of salt would thereby diminish annually is untenable since it is well known that salt deposits are usually of immense dimensions. This interpretation also provides a rational explanation of the observed fact that the yield of salt is generally commensurate with the fall of rain in winter. It is hoped to obtain confirmation of this theory by further investigation.

USES.

Salt is an essential constituent of the food of man and animals and is essential to all forms of life. It has been estimated that about 30 lb. of salt per head of the population is annually required in the food supply. The 0.1 per cent. of hydrochloric acid present in the gastric and mucous fluids of the digestive tract is derived from the decomposition of the salt taken in with the food. It enters and leaves the body as sodium chloride. It is not built up into the cellular structure but helps to maintain the osmotic pressure of the vessels and to regulate the heart beat. Amongst other things it serves to keep in solution the proteins of the blood, lymph, milk, etc. Amongst the animals it is noteworthy that the herbivora require salt in their food while the carnivora do not. Herbivorous animals have been known to travel hundreds of miles to a "salt-lick" in order to satisfy their natural craving for salt. Carnivorous animals obtain their salt from the blood of animals on which they feed. The use of salt as a condiment enables mankind to utilize a larger variety of the food products of the earth than would otherwise be possible.⁶ In some countries salt is used as fertilizer for the land. In Cyprus large quantities of Larnaca salt are consumed by the villager in the curing of hams and meat and in the preparation of olives, cheese and butter. Locally the salt also finds considerable application in the manufacture of soap, hides and common glazed pottery. Thus, to the villager in Cyprus, salt is an indispensable domestic product.

THE SALT LAKE EXPERIMENTS.

In spite of statements to the contrary,⁷ Larnaca salt, collected in the simple manner already described, is necessarily an impure, low grade product and, selling at 4cp. per oke (in 1930), merited the description of "dear and dirty". The insoluble matter, consisting of sand, gypsum and animal excreta, may vary from 0.5 to 2.5 per cent., while the statement that the salt "possesses valuable medicinal properties"⁷ is simply a time-worn exaggeration. In addition to the insoluble matter the crude salt contains excessive amounts of calcium and magnesium chlorides which cause it to become damp. The results of nutritional research on health of these and other impurities in the food supply, taken generation by generation, is much greater than has been suspected. Indeed, it is only since the war that the fact has been clearly realized of the close connection between food and health. From the point of view of public health, therefore, an attempt was made to remove both the soluble and insoluble impurities as completely as possible, and so to render the salt a more satisfactory product.

A simple method of purification was first worked out in the laboratory which consisted of a process of filtration to remove insoluble impurities, and of recrystallization to remove soluble impurities. A salt of good taste and appearance, consisting of fine grain, cubic crystals suitable for use as table salt, was thus produced. The magnesium and calcium chlorides having been removed, the product remained dry and friable. In October, 1930, an attempt was made to apply this process on a larger scale at the Salt Lake, Larnaca. Crude Larnaca salt was first dissolved in fresh water and, after standing overnight, was filtered through fine canvas into improvised evaporation pans supported on specially built masonry walls which served both as fireplace and flue. It is noteworthy that salt is very little more soluble in boiling water than it is in cold water so that the necessity of using heat to promote solution was eliminated. The brine was then concentrated to the desired point by means of olive wood fires which could be controlled by care so as to maintain an even heat. The salt, produced at the boiling point of the brine, was, therefore, of a very fine grain, of good taste and suitable for use as table salt. After cooling the product was filtered off on canvas and pressed out on the filters until free from adhering mother liquors. After air-drying on racks a yield of 80-85 per cent. refined salt was obtained. In Table I complete analyses are given of refined Larnaca salt as compared with an average table salt.⁸

TABLE I.—REFINED LARNACA SALT AND AVERAGE TABLE SALT.

	Larnaca.			Table Salt.		
	%			%		
Moisture	5.76	..	..	..	..	..
Sodium chloride	87.79	..	..	..	..	98.25
Potassium chloride	0.03	..	..	..	..	—
Magnesium chloride	1.20	..	..	..	..	0.10
Calcium sulphate	1.94	..	..	..	..	1.31
Sodium sulphate	2.66	..	..	..	..	0.26
Alumina and ferric oxide	0.16	..	..	..	..	—
Insoluble Matter	0.22	..	..	..	..	0.08
	99.76	..	..	..	..	100.00

The insoluble matter of the Larnaca salt was reduced to safer limits and with further drying the actual content of sodium chloride would be over 90 per cent. In Table II data are given showing the wide variation in the composition of salt derived from different origins, namely, sea salt⁹, brine salt¹⁰ and rock salt¹¹.

TABLE II.—VARIATION IN COMPOSITION OF SALT FROM DIFFERENT ORIGINS.

	Mediterranean Sea Salt.		Cheshire Brine.	Cheshire Rock Salt.
	%		%	%
Sodium chloride	77.0	..	97.35	98.30
Potassium chloride	2.5	..	—	—
Magnesium chloride	8.8	..	0.07	0.05
Calcium sulphate	2.8	..	0.83	1.65
Magnesium sulphate	8.3	..	—	—
Magnesium and calcium carbonates	0.1 (MgCO ₃)	..	0.03	—
Sodium and magnesium bromides	0.5	..	—	—
Sodium sulphate	—	..	1.13	—
	100.0	..	99.41	100.00

Altogether some 300 okes of purified salt were prepared by this method and steps were then taken to try out the salt for a variety of different uses and to test the market at a retail price of 6cp. per oke, or 3d. per lb. The salt was used for domestic purposes in place of imported table salt, in the manufacture of cheese and butter for export, in the Nicosia Hospital and Dispensary for clinical work, and for scientific purposes in the Government

Laboratory. In all cases the purified salt gave satisfactory results when used in place of imported salt. The chief difficulty encountered was undoubtedly the price which, being 50 per cent. more than the crude salt, was generally thought to be too high. No doubt this view was strengthened by the fact that 14 years ago the price of Larnaca salt was only 1cp. per oke. Thus the extra cost of purification, added to the then prevailing price of the crude salt, was the principal difficulty in the way of economic progress. Salt, being a monopoly of the State as it is in many other countries of the East, is a valuable source of revenue, namely £32,000 per annum, and a reduction of only 1cp. represents a sacrifice of some £8,000. It is satisfactory that in spite of this loss to revenue Government was able to effect this reduction in the price of crude salt at the beginning of 1932.

THE SOLAR PROCESS.

From the foregoing experience it was concluded that some cheaper process must be found than that of recrystallization by artificial heat; that is, the salt must be thrown out of solution by utilizing in some way the heat of the sun's rays, thus eliminating the cost of fuel and apparatus. Where artificial heat is used in the commercial production of table salt, it is essential to employ modern multiple-effect vacuum evaporating pans. By this means the output of salt is more than doubled for the same expenditure of fuel by the open pan process as in the Larnaca experiments. This system is specially adapted to the production of a fine-grain table salt, but on account of the high initial costs this solution must be ruled out so far as Cyprus is concerned.

The solar process requires little in the way of plant and labour and, therefore, appears to be the most feasible. A further advantage of this process in Cyprus is that the danger of salt not forming naturally in any year, because of excessive or late rains, is entirely removed. A process along these lines has been successfully operated for a number of years at Athlit, Palestine, where an excellent table salt has been produced in sufficient yield to meet the needs of the whole country. This product contains less than 0.2 per cent. insoluble matter and an average of 1.5 per cent. calcium and magnesium salts. Briefly, the method is as follows. Sea water is pumped into artificial reservoirs situated near the sea and here, by the action of wind and sun, it becomes concentrated. The brine is then led into a cascade system of evaporation tanks lined at the bottom with a thick layer of clean sand. Such tanks are provided with movable covers which may be drawn over in the event of rain. By the heat of the sun's rays the brine, in its passage through the cascade, finally becomes so concentrated that salt crystallizes out. The salt is then carefully collected into heaps and

allowed to stand while the deliquescent salts, such as magnesium chloride, drain away. This process is repeated so that three to four crops of pure salt are obtained every year. After drying, the salt is simply ground into two qualities, *i.e.*, fine salt for table use and coarse-grained salt for curing. Within recent years the production of solar salt has so greatly increased in the Mediterranean, that there is now no export trade in Larnaca salt. In the Montpellier district of France, for example, the numerous salt-gardens along the 140 miles of coast between Hyères and Cette, produce annually no less than 150,000 tons of solar salt¹¹.

From an actual study of the methods of salt production in Cyprus and Palestine, the writer is convinced that the solution of the salt problem here lies in the adoption of the solar process, after suitable modification to suit local conditions. At Larnaca there is the advantage that the Salt Lake itself would be the reservoir of brine and only the evaporation tanks, built of wood, stone and sand, would need to be constructed. During this summer a trial was made at Larnaca with a single concrete tank, lined with pure sand, into which was placed a foot of lake brine. After six weeks' solar evaporation a satisfactory salt was thrown down on the sand bottom, which was purer and whiter than the crude lake salt.

Thus there would seem to be no good reason why the success of Palestine in the economic solution of her salt problem should not be repeated in Cyprus where there is the added advantage of extensive salt lakes. Whether this be achieved by Government initiative or by private enterprise, it is not necessary to emphasize the importance of a permanent solution of this problem from the point of view of food, health and economics.

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A few Notes on Shinia (*Pistacia Lentiscus*).

GENERALLY the seeds of plants belonging to the genus *Pistacia* are oleiferous and some contain a certain percentage of edible oil. The oil from the seeds of *Pistacia Lentiscus*, which is known locally as *Shinia*, is used, to a certain extent, for domestic purposes in the villages of certain localities of Cyprus.

Shinia is found growing in all parts of the Island, especially at low altitudes, and mainly in the scrub forests. The leaves of *Pistacia Lentiscus* contain tannin and, although poor in tannin content, when compared with other tannin producing plants, it is used, to a small extent in the Island, for tanning purposes. In olden days *Shinia* leaves were exported for this purpose.

Shinia seeds produce an edible oil known as *Shinokokka*. This oil is of a greenish colour and is used in the villages as an edible oil, especially for frying fish, on account of the flavour it imparts. It is also used in the process of soap making by local soap makers. The utilization of *Shinia* oil in soap making is reported to have started in the Island some twenty years ago in the Akanthou area, when a soap maker from the Greek Islands established himself.

The seeds which contain up to ten per cent. of oil are collected when fully ripe and crushed and pressed in olive-oil presses. Some soap makers use the pure *Shinia* oil while others mix it with some other oil. *Shinia* oil is favoured on account of its aromatic properties, it is also suitable for the preparation of toilet soaps. There are adequate supplies of the raw material in the Island if local soap makers desire to increase the use of this kind of oil in their establishments.

The famous variety of *Pistacia Lentiscus* of the Greek Island of Chios has been found growing at Limassol and Koma-tou-Yialou and elsewhere in Cyprus. Holmboe in his "Studies on the Vegetation of Cyprus" records the following in regard to the variety from Chios :—

"In the garden of Mr. Cacathymi at Limassol I have seen a beautiful dendriform specimen of the famous variety from Chios, which has been introduced from that Island by the father of the present proprietor many years ago. The same tree is also mentioned by P. Gennadius (*Agricult. of Cypt.* II, p. 25.)

This variety produces a gum known as "mastichi" from which the alcoholic drink "masticha" is distilled.

The gum is also used in the preparation of mastic chewing gum and for the preparation of Mastichi paste (*glykon tou mastichiou*) and for other domestic purposes. The resin from which the gum is prepared is extracted by making incisions on the branches.

EDITORIAL AND ADVERTISEMENT NOTICES.

All communications for publication should be addressed to the Editor *Cyprus Agricultural Journal*, Department of Agriculture, Nicosia.

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The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

Pruning of the Vine.

THE pruning of the vine in Cyprus is not always carried out with the care and attention this important operation should receive. Pruning in viticulture should only be done by experienced and reliable workers, yet in Cyprus this work is done by unexperienced and untrained persons. For this reason the average production of grapes remains at a relatively very low average.

Production can be regulated more by pruning than by any other operation in the vineyard. The general practice in Cyprus is to cling to the system of "en tête de saule" (willows head) now abandoned in all other vine growing countries. As a result of years of such pruning the vines present the appearance of huge stumps covered with dry or dead wood which cause a slow and sure decay of the vine. If the accumulated dry wood is cut out, open wounds are formed which allow easy access to fungus disease. Little can be done to improve these old deformed vines, but all possible measures should be taken to practice proper and methodical pruning on the vines in new and young vineyards.

The following are a few of the principal points which should be kept in mind by the pruner, but a complete and thorough knowledge of pruning can only be acquired by practical demonstration and experience in the vineyard.

The amount of pruning given to each individual vine must be in relation to the vigour of the plant; therefore, every vine should be pruned on its own merits. A vine can only properly nourish a certain number of shoots and bear a certain number of fruits. If the vine is feeble, the number of bearers or eyes left for producing shoots should not be more than the vine can nourish, otherwise the vine will produce thin shoots which will exhaust the plant, and numerous and small bunches of grapes which will ripen badly. On the other hand, a vigorous vine which, when pruned, has only a few bearers or eyes left, will produce long and strong vegetative shoots and a small fruit production.

Other factors to be considered when pruning is being carried out, are the variety of vine, soil, climatic conditions and age of the vine.

The dry climatic conditions in Cyprus with rather poor soils in the vine growing Districts, require a short pruning, leaving three to eight bearers with two eyes each, in preference to long bearers with more than two eyes. The actual number of bearers depends upon the vigour of the individual vine. Preference should be given to healthy ones of medium strength.

Reservation of Tree Planting Areas.

A NUMBER of villages have recently taken steps to declare areas in their village to provide for the reservation of tree planting areas in accordance with the provisions of the Tree Planting Village Areas Law, 1930.

This is a very progressive step on the part of the village communities who have already taken action and it is hoped many more villages will follow the action of their enterprising neighbours.

The need for reserved tree planting areas is apparent to all who are concerned with agriculture and arboriculture in Cyprus, and the adverse circumstances under which tree growth suffers through climatic and human and animal depredations leaves one wonder how any tree, unless protected, ever survives at all in Cyprus.

The area proposed to be reserved by a village is examined by senior officers of the Agricultural and Forest Departments before it is finally declared and the following abstracts from a report by Mr. A. Klokkaris, Assistant Inspector of Agriculture, of a proposed area for reservation at the village of Kato Kopia is published, as it may prove of considerable interest to other villages who in the future contemplate applying the Law in their village :—

“ The area for reservation at Kato Kopia is that described in the Mukhtar's report and conforms with the boundaries stated therein. The area is approximately 300 donums and is not larger than one-fifth of the total village area which is in accordance with the requirements of the Law. The soil, although shallow, is of medium fertility. It is calcareous and sandy and, although unsuitable for cereal cultivation, it is very suitable for tree planting.

The proposals did not meet any serious opposition in the village. Nearly all farmers in the village possess lands within the area and out of 120 voters only ten voted against the scheme.

The area has the advantage of being irrigable and thus, besides being capable of producing drought-resisting trees, it could produce various kinds of fruit trees including citrus. Instructions were given in the systematic planting and proper spacing of trees. This village is devoid of any fuel reserved area and a portion of the area should be devoted to planting forest trees as a village fuel supply.

This area is adjacent to the reserved tree planting area of the village of Argaki and thus forms a total area of some one thousand donums devoted to tree planting. It is to be hoped that this area will be added to, as I have suggested that Morphou village should declare as a village tree planting area, the adjoining land which is most suitable for the purpose.

The balance of the village area is considered sufficient to maintain the live stock of the village.

I believe the villagers are sincere and are taking an exceptional interest in the scheme. I gave instructions to the schoolmasters and lectures to the farmers on tree planting subjects."

Preserving Eggs.

MANY people purchase large quantities of eggs during the season they are cheap and plentiful, in order to have a reserve supply when prices rise and when eggs are scarcer. To keep eggs for a lengthy period and still preserve their nutritive value, they should be properly preserved. There are several recognized methods of preserving eggs and the following are some of the better known methods :—

Preserving in water glass.

Preserving in lime water.

Preserving in a coating of linseed oil, vaseline or paraffin wax.

Preserving at low temperature.

Preserving in water glass is the method generally adopted and the following notes on this method are given :—

Place 200 fresh eggs in an empty benzine tin. Prepare a solution of two pounds of water glass in eight okes of hot water. When this solution is cold, pour over the eggs in the benzine tin taking care to ensure that the solution covers all the eggs. The tin should be carefully covered before it is placed in store.

The following points must be carefully observed to ensure success :—

(a) The water used for preserving should be fresh and should have no dirt adhering to the shells.

(b) The water used for making the water glass solution should be pure and preferably boiled before use.

(c) All receptacles used shall be scrupulously clean.

(d) Eggs removed from the preservative should be used immediately and if such eggs are used for boiling, they should be pierced with a pin, otherwise they will break.

(e) Preserved eggs should be washed before use.

(f) Eggs in the water glass solution should be stirred from time to time so that the yolk remains in its natural position.

(g) The receptacle containing the preserved eggs must be stored in a cool dry place.

(h) As there may be a certain amount of evaporation during warm weather, additional solution should be added from time to time, if necessary.

Water glass may be purchased from the Storekeeper, Agricultural Department, at 16cp. per tin of 2 lb.

Cotton Experiments, 1932.

BY A. M. FRANGOPOULOS, B. LETT. (AV.), B.Sc. (DURHAM).

COTTON experiments this year were arranged as follows:—

- (a) Date of sowing trials.
- (b) Comparative trials with Chemical Fertilizers of certain types commonly used in Cyprus.
- (c) Spacing experiments.
- (d) Trials with imported varieties.

DATE EXPERIMENTS.

Fortnightly sowings with five replications were made at eight different dates. Up to the 26th September, the cotton which was picked from the plots sown on 15th March, 29th March and 12th April, was free from damage by Pink Boll Worm. The following percentage of attack by Pink Boll Worm was found on the bolls of the above plots referred to and in the remaining plots after the 26th September.

March 15th.	March 29th.	April 12th.	May 10th.	May 24th.	June 7th.	April 26th.	June 21st.
—	—	—	—	—	—	—	—
69%	56%	64%	60%	38%	54%	62%	70%

The following table shows the production per donum.

Sowing date.	March 15th.	March 29th.	April 12th.	April 26th.	May 10th.	May 24th.	June 7th.	June 21st.	Mean.
Production of seed cotton in okes per donum	200.72	177.64	184.19	169.78	154.75	139.48	89.99	60.42	—
Percentage of seed cotton production in relation to Plot of March 15th ..	100	88.4	91.7	84.5	76.9	69.6	44.7	30.1	73.2

The yield from cotton sown on 29th March and 12th April drops appreciably as compared with that sown on 15th March, and there is a gradual reduction in yield in each successive plot after 26th April. Yields of June plots are less than half of the mean yield of the plots sown on 15th March, 29th March and 12th April.

FERTILIZER EXPERIMENTS.

Type of fertilizers.	4.10.10.	4.12.3.	6.8.8.	Control.	Mean.
—	—	—	—	—	—
Yield of seed cotton per donum in okes	197.50	192.55	188.20	159.91	184.54
Yield of seed cotton per acre in lbs. ..	1645.8	1604.6	1568.4	1332.5	1537.8
Yield % of mean	107	104	102	88.6	100

Yield given by fertilizer 4.10.10 is higher and that of the control plot is lower than the mean yield of all plots.

SPACE EXPERIMENTS.

In these experiments the ridges of all plots were 3 feet apart and the distances between the holes only were varied as indicated in the table. No appreciable differences in yield are recorded.

<i>Distance between holes.</i>	10"	12"	16"	18"	<i>Mean.</i>
Yield of seed cotton per donum in okes	213.86	202.33	214.37	208.2	209.69
Yield of seed cotton per acre in lbs. . .	1782.1	1686.1	1786.4	1735	1747.4
Yield % of mean	102	96.5	102.2	99.2	100

IMPORTED VARIETIES.

Owing to the exceedingly small quantity of seed available the following varieties were grown in very small plots for rough comparison only :—

<i>Country of origin.</i>	<i>Varieties.</i>
Egypt . . . . .	..Sakellarides, Sakha II, Sakha IV, Giza II, Giza III, Giza VII and Nahda.
Iraq . . . . .	..Mesowhite.
South Africa . . . . .	..U.4.

The opening of bolls of all the Egyptian varieties started a month later than the local Cyprus varieties. The plants were thin and rather tall and the bolls undersized.

U.4 and Mesowhite opened 10 days later than the local varieties. There was a good development of the fruit-bearing branches and the bolls were large in size.

All above varieties were sown on the 29th March, they were cultivated in the same manner and received no fertilizers.

The Egyptian varieties are better than Cyprus varieties as far as quality is concerned, but owing to late maturity they are more suited for Messaoria conditions than Morphou area or elsewhere in Cyprus. They are decidedly not suitable for growing as "dry" or "unirrigated" cotton in Cyprus owing to late maturity.

U.4, although not as good as the Egyptian, gave much better results than the local varieties.

Mesowhite does well either as irrigated or as dry cotton and matures much earlier than the Egyptian varieties.

The Wilt Disease of Potatoes.

THIS disease of the potato crop made its appearance comparatively late in the season this year.

In 1931, the wilt was serious and widespread during August, September, and the first week in October, after which the attacks of the disease gradually lessened. No further outbreaks were reported after the end of the month.

That the disease should have appeared later in the season and with comparatively slight intensity, may be due to the exceptional climatic conditions prevailing, and also to the shortage of water, which has induced the growers to allow greater intervals between each watering.

SYMPTOMS OF WILT IN THE FIELD.

The general symptoms of the wilt in the field are familiar to most farmers. The plants are not usually visibly affected until approaching maturity, in which respect it differs from the "black leg" disease which may attack plants in the earlier stages. In the wilt disease an apparently quite healthy plant suddenly becomes limp as if severed from the base and quickly dies.

A darkening of the haulm can usually be seen near the collar or surface of the soil at which point, in the more advanced stages, the stem becomes rotted. Another characteristic of the wilt is a brown discolouration of the woody tissue of the stem, extending for some distance up the stem.

THE CAUSE OF THE WILT DISEASE.

Two fungi have been found associated with the disease in Cyprus: a *Fusarium*, which is always present, and a species of *Rhizoctonia*. Both these fungi have been isolated from the vascular tissue of diseased plants.

These organisms are both soil-dwelling and can gain entry into the plant through wounds caused by insects or by cultivation. Under Cyprus conditions, it seems probable that these enter through cracks in the epidermis of the stems which are mainly caused by overwatering.

There is no doubt that the rot of the haulm can be communicated to the tubers, though the effect on the latter at the time of lifting may be slight. Such diseased tubers, if planted, will give rise to a diseased crop.

CONTROL MEASURES.

To control the disease, it is of primary importance to select seed from disease free crops. All affected plants should be dug out as soon as the wilt appears, care being taken to remove all immature tubers and as much of the root system as possible.

Irrigation should be restricted to the minimum needs of the crop, the presence of a proportion of wilted plants does not indicate a lack of water. If examination of the wilted plants shows the symptoms described above, watering should be restricted. Crop rotation is important, when the disease has become established, as long an interval as possible should be left between two successive crops.

Flax Cultivation in the Messaoria.

THE following letter has been received from the Secretary of the Co-operative Credit Society of Asha, one of the farmers of the Messaoria, with the request for it to be published in the "Cyprus Agricultural Journal":—

"In 1931, the Agricultural Department issued on loan to farmers of our village—200 okes of Belgian flax seed.

The sowing was carried out at the right time according to instructions given by the Flax Instructor. Germination was good and the plants attained a height of $3\frac{1}{2}$ to 4 feet. A certain amount of failure was observed towards the end of February in some fields through wind damage. On reaching maturity the flax was uprooted as indicated by an expert of the Agricultural Department and after drying and seeding it was retted under the supervision of the Flax Instructor.

We were advised by him to send our flax to Zodia scutching mill where it was scutched at very little expense.

We also applied to the Agricultural Department for two small spinning wheels which were promptly supplied and we were instructed how to spin and weave.

To-day all Asha farmers are very satisfied with the cloth made from flax fibre, owing to its strength, and they realize that flax cultivation is the only salvation of the Cypriot farmer of the Messaoria, the fields of which would produce flax on a large scale.

We, therefore, consider it our duty to express our many thanks to the Director of Agriculture, the Flax Instructor, and generally to all Officers of the Agricultural Department dealing with this industry, for the endeavours made by them to instruct our farmers in flax production.

Hoping that this letter will be published,

I remain,

Sir, etc.,

(Sgd.) Ioannis Leondiades,
Farmer and Secretary of C.C.S., Asha.

DISTRICT NOTES.

Abstracts from the Reports of the Commissioners, Nicosia, Famagusta, Limassol, Paphos, Larnaca and Kyrenia for the Quarter ended 30th September, 1932.

Nicosia District.

Cereals.—The production of wheat is estimated to be 75% less than that of last year. The ruling price of this field crop is from 5s. to 5s. 3cp. per kilé, against 3s. to 3s. 3cp. for the corresponding period of last year.

The production of barley is estimated to be 65% less than that of last year and the ruling price is from 27cp. to 29cp. Part of the barley crop was used as fodder of the flocks for lack of grass owing to the shortage of rain. The production of oats was about 90% less than that of last year. Owing to the poor production of grain, a shortage of straw was felt and a good quantity was imported from abroad during the quarter. The price rose as high as 16s. to 17s. a camel load, but fell to about 10s. during August. Wheat and barley were also imported. The production of vetches was a total failure, the yield of which is estimated to be about 94% less than that of last year.

Although a larger area of maize has been sown this year owing to the failure of the field crops, most of the seed being issued free by the Agricultural Department, the yield of grain was 90% less than that of last year because most of the maize plants were used for green fodder for animals.

Potatoes.—The yield of potatoes is expected to be less than that of last year because, owing to the decrease of the irrigation water in some villages, a less area has been planted than last year. The condition of the plants is, however, so far good.

Cotton and Summer Crops.—The production of cotton and other summer crops is estimated to be far less than that of last year. On account of the drought a small area only has been sown this year.

Olives.—The production of olives this year is a failure and this is due, on one hand, to the shortage of rain, and on the other hand, owing to the large production of last year. It has been observed for many years that a good olive crop seldom occurs in two consecutive years.

Carobs.—The production of carobs is estimated to be 50% less than that of last year, but the price has improved to about 10s. a cantar.

Grapes.—The yield of grapes is estimated to be from 20% to 25% less than that of last year.

Nuts and Fruit Trees.—With the exception of the production of nuts, which was equal with that of last year on the whole, the production of fruit-bearing trees is estimated to be more than that of last year. Although the production of hazel-nuts was more than that of last year, the quality is inferior.

Sericulture.—The production of cocoons is estimated to be about 40% less than that of last year.

Famagusta District.

Potatoes.—Low prices have not deterred the growers from putting an area under potatoes almost as extensive as in 1931, due to an expectation that the United Kingdom will take a large part of the crop.

Shortage of water seems to have affected this product, but little, though leaf-eating insects, have caused considerable damage in certain localities round Vatili, Lysi and Kondea necessitating the spraying of some 80 donums by officers of the Agricultural Department.

"Fusarium" has also been reported in certain places; but of attacks by *Lita Solanella* few have occurred as was to be expected.

Exports on a limited scale have been made to Egypt, Palestine and Greece, but prices were low (20 to 30 *paras*) for seed potatoes and the demand was slight.

Cereals.—There is little that can usefully be added to what was recorded in last quarter's report under this head beyond the fact that the Agricultural Department effected purchases within the District of 11,052 kilés of wheat and 12,196 of barley in connection with the scheme of making seed corn loans in areas badly affected by the drought. The bulk of this grain so purchased was obtained from Trikomo and certain neighbouring villages, 42*cp.* to 45*cp.* per kilé being paid for wheat and 21*cp.* to 23*cp.* for barley.

Carobs.—Production averaged about 30% below last year's figures, but the prices realized were comparatively good, having risen from between 4*s.* 4½*cp.* to 5*s.* 4½*cp.* to between 10*s.* and 13*s.* per cantar.

Olives.—As was anticipated, the collections were meagre, the trees having suffered from lack of rain.

Pomegranates.—A fair normal crop has been gathered, but growers have been very badly hit by the action of the Egyptian Government in raising the tariff.

Silk Cocoons.—The estimated weight of cocoons reared in the District is 19,400 oke as compared with 23,629 last year. The prices realized ranged from 7*cp.* to 10*cp.* per oke and the villagers preferred, therefore, to reel the silk for their own use.

Tobacco.—A somewhat more extensive area was placed under cultivation than in 1931.

Cotton.—Lack of rain discouraged any extensive planting, but the crop, so far as it went, was satisfactory. Prices rose from 2½*cp.* and 3¼*cp.* in 1931 to 3½*cp.* and even 4*cp.* per oke.

Limassol District.

Carobs.—The carob crop is estimated to yield about 60,000 cantars, *i.e.*, about 55% less than that of last year which was a little above the average. The quality owing to drought and hot winds was inferior, but the prices realized were considerably higher and the producers, therefore, realized larger profits than they did for the crop of the previous year. The prospects for next year's production are not at present encouraging. Prices began at 9s. and reached 14s. per cantar, but later fell to 12s. 3cp.

The following exports took place during the quarter :—

Cantars.

United Kingdom	..	..	..	34,516
France	..	..	..	5,468
Egypt	..	..	..	522
Palestine	..	..	..	235
Roumania	..	..	..	611
Italy ..	..	..	..	437
Malta	..	..	..	667
Germany	..	..	..	283
America	..	..	..	889
				<hr/>
				43,628

Export for the corresponding quarter of 1931, was 29,038 cantars.

Wine and Grapes.—Despite the fact that damage was caused to the vines by the high temperature and hot winds at the end of July, the crop improved later on account of the cooler winds and moist weather which prevailed during the last part of the quarter.

The estimate for this year's crop of grapes is about 430,000 loads or 25,800,000 okes which is about average. The quality of the crop is moderate.

For wine the prices ranged from 25s. to 29s. per load of 36 gallons which is exceptionally good considering the general fall in prices. The stock in hand from last year amounted to 7,700 loads or 277,200 gallons.

Exports took place to the following countries :—

Gallons.

United Kingdom	..	..	..	47,067
Egypt	..	..	..	218,125
Syria ..	..	..	..	6,276
Sudan	..	..	..	3,095
Dodekanesia ..	..	..	..	2,371
				<hr/>
				276,934

The total exports for the corresponding quarter of 1931, was 405,120 gallons.

The Cyprus Wine and Spirits Co., have purchased about 2,000,000 okes of grapes from villagers at 30 *paras* per oke for black, and 34 to 45 *paras* per oke for white grapes.

Raisins.—The production is estimated to amount approximately to 1,400,000 okes which is about the same as last year. The prices ranged from 2*cp.* to 2*cp.* 15 *paras* per oke with a downward tendency as there is no demand at present for immediate export.

The following exports took place :—					<i>Okes.</i>
United Kingdom	..	..	..	..	780
Italy	..	..	..	..	500,550
France	..	..	..	..	148,067
Roumania	..	..	..	..	49,530
Egypt	..	..	..	..	6,734
Dodekanesia	..	..	..	..	442
					<hr/> 706,103 <hr/>

The corresponding quarter of 1931, showed an export of 93,829 okes.

Paphos District.

Cereals.—Arrangements were made with the Department of Agriculture for the supply of seed corn to necessitous farmers in villages seriously affected by the drought. Some 7,000 kilés of wheat and 3,000 kilés of barley were allotted to Paphos District and distribution will take place during the month of October and November. Similar arrangements, though perhaps on a more restricted scale, will be made for the supply on loan of chopped straw as fodder for animals.

Carobs.—The carob crop was sold to merchants at prices ranging from 12*s.* to 14*s.* per cantar. This represents an increase of about 100% on the prices of last year and was a welcome relief to villagers at a time of general price depression. The estimated yield this year was 23,000 cantars which is roughly 10,000 cantars or 29% below the yield of an average year. The crop of last year was approximately equal to that of an average year. In spite of the decrease in quantity, therefore, producers benefited by an increase of about 29% in the total receipts from this source, on account of the rise in price.

Viticulture.—The production of grapes this year was about double that of 1931, and the quality was good. The price paid at the port of Paphos for export to Egypt was 35 *paras* per oke and a quantity of 266,452 okes, valued at £2,172. 10*s.* 1*cp.*, was so exported.

Citrus Fruits.—Prospects for oranges, lemons, etc., seem to be distinctly good.

Larnaca District.

Cereals.—Owing to the drought the harvest was unsatisfactory. The wheat was 20½% less than in 1931, and the barley 30%.

The prices were as follows:—

1931.	1932.
Wheat 4s. per kilé	5s.—5s. 4½cp. per kilé.
Barley 18–22cp. per kilé ..	22–24cp. per kilé.

Carobs.—Owing to the lack of rain in winter and spring, the average production is about 75% less than that of last year.

The prices during the quarter were 10s. to 13s. per cantar as compared with 5s. to 6s. last year.

Olives.—A very poor crop of olives has been recorded this year, and in many localities, where it is largely depended upon, it has failed completely, the average production being about 95% less than that of last year.

Grapes.—The yield is above the average, i.e., 25% more than that of last year.

Cotton.—The harvesting of cotton had only begun. But it appears that the production will be poor on account of drought.

Seed Corn Loan.—5,303 kilés of wheat and 1,296 kilés of barley have been purchased from Larnaca District.

1,053 kilés of wheat and 688 kilés of barley were sent to Limassol. Also 1,276 kilés of wheat were sent to Nicosia.

The amounts allotted to this District are 1,874 kilés of wheat, and 835 kilés of barley. Additional quantities will be allotted if it can be arranged by the Director of Agriculture.

Kyrenia District.

Cereals.—The production of cereals varied in different parts of the District, in some localities a fair crop was harvested, while in most places the production was well below the average and there are many instances where only one kilé per donum was obtained. The present price of wheat is 5s. to 6s. per kilé and for barley 2s. 6cp. per kilé. Large quantities of the latter have been imported from Asia Minor and sold for 3s. per kilé. Oats have been available in very limited quantities at 2s. 4½cp. per kilé.

Potatoes.—The summer crop of this commodity has, in general, been satisfactory. The current price ranges between £2 10s. to £3 per ton. Potatoes for winter production have been planted extensively.

Cotton.—The yield of cotton varied according to localities, and in some, the effect of the drought was very apparent. The price remained steady at 3cp. per oke.

Tobacco.—Though the quantity of tobacco planted this year has been small as compared to previous years, the quality has on the whole been good; and the picking and drying of the leaf has been carried out and assisted by favourable conditions.

Carobs.—Generally speaking, the production of the bean was poor, although there were a few exceptions in certain localities, where an average crop was gathered. At the beginning of the season the price opened at 8s. per cantar, but it subsequently rose owing to competition by other firms of the Island; and at one time 13s. 4½cp. was offered. The present price is 12s. per cantar.

Onions.—A good crop of both onions and onion sets was produced; price 1½cp. to 3cp. per oke.

Olives.—This commodity, so important to the native, has to all intents and purposes failed this year, and so added one more calamity to the misfortunes of the producer and the consumer.

Citrus Fruits.—The yield of these fruits is expected to be below the average during the coming season, especially with regard to mandarines. 10s. per thousand for lemons is at present being offered, but this price is not likely to obtain as the season advances.

Nursery Garden, Kyrenia.—This Garden has been kept up to standard, although some difficulties have been experienced, due to the diminution of the Water Supply.

Experimental Garden, Lapithos.—The lime plantation at this village has had the necessary treatment, a light dressing of artificial fertilizer being given at the beginning of July, resulting in an improvement in the condition of the trees.

School Gardens.—The Agricultural Assistant has paid special attention to these gardens, when visiting the District during the summer months, and has given instruction to those left in charge while the School Teachers have been away on holiday.

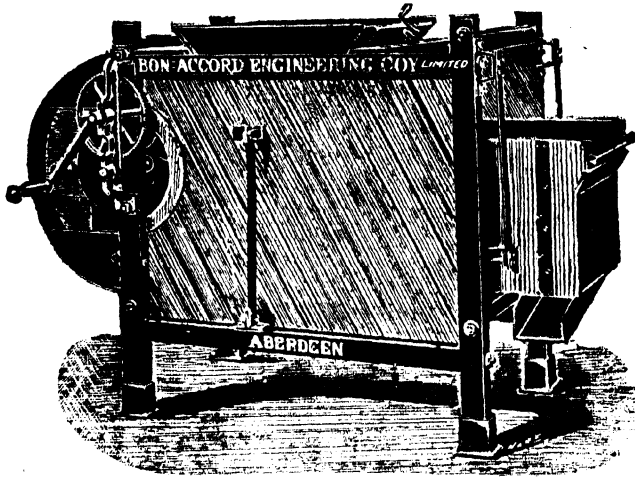
Miscellaneous.—Rats.—Although it is generally believed that rats are not to be found at this time of the year, it may be noted that 2,639 heads have been purchased at Kyrenia and Myrtou during the last three months.

Hornets.—400 hornets' nests were destroyed in the District during September.

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